

**APRIL 15, 2008**MICHAEL W. DOBBINS  
CLERK, U.S. DISTRICT COURTIN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF ILLINOIS  
EASTERN DIVISION

KLUBER SKAHAN + ASSOCIATES, INC.,

Plaintiff,

v.

CORDOGAN, CLARK & ASSOC., INC.  
and JEYEONG KIM,

Defendants.

No. 08 c 1529

Judge Zagel  
Magistrate Judge Nolan**DEFENDANTS CORDOGAN, CLARK & ASSOC., INC.'S AND JEYEONG KIM'S  
MEMORANDUM OF LAW IN SUPPORT OF THEIR MOTION TO DISMISS**

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## **I. INTRODUCTION**

Kluber Skahan + Associates, Inc.'s ("KSA") eight claim complaint is an ill-conceived shotgun blast of blank shells designed to impede lawful competition by one its primary competitors, Cordogan, Clark & Associates, Inc. ("Cordogan"), and one of its former engineering interns, Jeyeong Kim ("Mr. Kim"). At its core, KSA alleges that Mr. Kim misappropriated a collection of common abbreviations (*e.g.*, "BTU" for "British Thermal Unit"), well-known electrical symbols, and a handful of detail drawings of electrical design features (collectively referred to by KSA as the "Design Components"), that it contends are protected by a registered copyright and constitute trade secrets. Not only are KSA's contentions factually unsupported, they are unsupportable as a matter of law. The allegations of the Complaint and documents attached thereto demonstrate that KSA's purported Design Components are not covered by a registered copyright and do not constitute trade secrets.

KSA's claims are legally insufficient in their entirety and should be dismissed with prejudice for at least the following reasons:

- Because KSA failed to register a copyright in the Design Components, this Court lacks subject matter jurisdiction over KSA's Copyright Act claim in Count I and any request for statutory damages, attorney's fees or punitive damages under the Copyright Act should be stricken;
- KSA fails to state a cause of action under the Illinois Trade Secrets Act in Count II because KSA's allegations affirmatively establish that the allegedly misappropriated Design Components are not trade secrets and KSA did not take reasonable measures to protect its purported trade secrets;
- KSA's Computer Fraud and Abuse Act claim in Count VI fails to allege any threshold "loss" and/or "damage" required to state a cause of action; and
- KSA's common law claims in Counts III, IV, V, VII and VIII are preempted by the Illinois Trade Secrets Act and by the federal Copyright Act.

## **II. PLAINTIFF'S FACTUAL ALLEGATIONS**<sup>1</sup>

### **A. The Parties**

Plaintiff KSA is a licensed professional design firm based in Batavia, Illinois that is engaged in the practice of architecture and engineering and a competitor of Cordogan. (Compl. ¶¶ 1, 21.) KSA employs both architects and engineers. (Compl. ¶ 8.) KSA employed Mr. Kim, an engineering intern, from April 2002 to April 12, 2004. (Compl. ¶ 3.)

Founded in 1951, Cordogan is a licensed professional design firm engaged in the practice of architecture and engineering, with offices in Chicago and Aurora, Illinois. (Compl. ¶ 2.) KSA competes with Cordogan. (Compl. ¶ 21.) Cordogan employed Mr. Kim from April 2004 until Mr. Kim resigned in 2007. (Compl. ¶ 3.)

Mr. Kim is currently a licensed engineer who no longer works for Cordogan or KSA. (Compl. ¶ 3.) Although Mr. Kim was not licensed as an engineer while employed by KSA, Mr.

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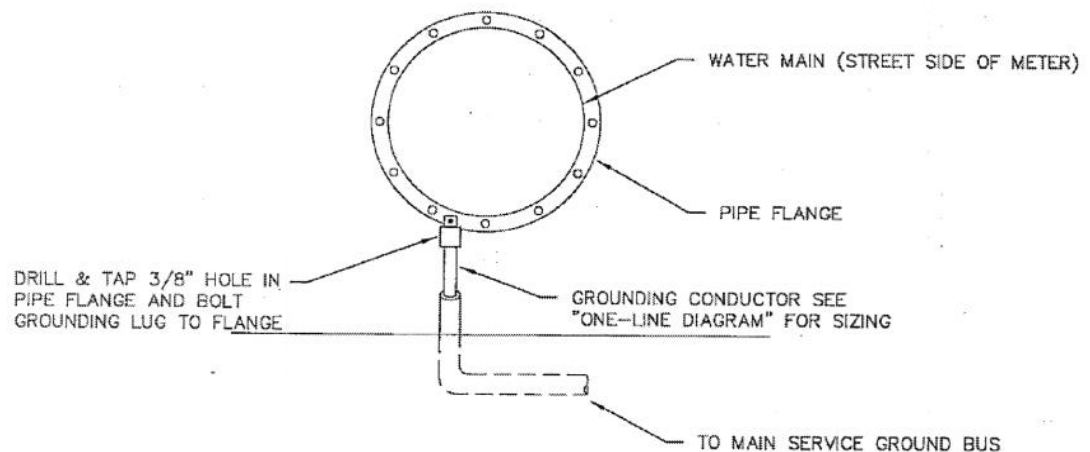
<sup>1</sup> Solely for purposes of this motion, Defendants treat KSA's well-pled, non-conclusory factual allegations, to the extent they are consistent with and not contradicted by the documents attached to the complaint, as true.

Kim subsequently became a licensed engineer while employed at Cordogan. (*Id.*) Mr. Kim continues to be employed as an engineer by a firm that is not a party to this action.

#### B. History of KSA's Development of the "Design Components"

From 2002 through 2004, directly coinciding with Mr. Kim's employment at KSA, Michael T. Kluber ("Mr. Kluber") allegedly "created, organized and refined" certain components of architectural drawings to be used with KSA's computer aided design programs, including symbols, abbreviations, diagrams, schedules and detail drawings (the "Design Components"). (Compl. ¶¶ 9-10; Exhibit A) (KSA attached the alleged Design Components to its Complaint as Exhibit A).

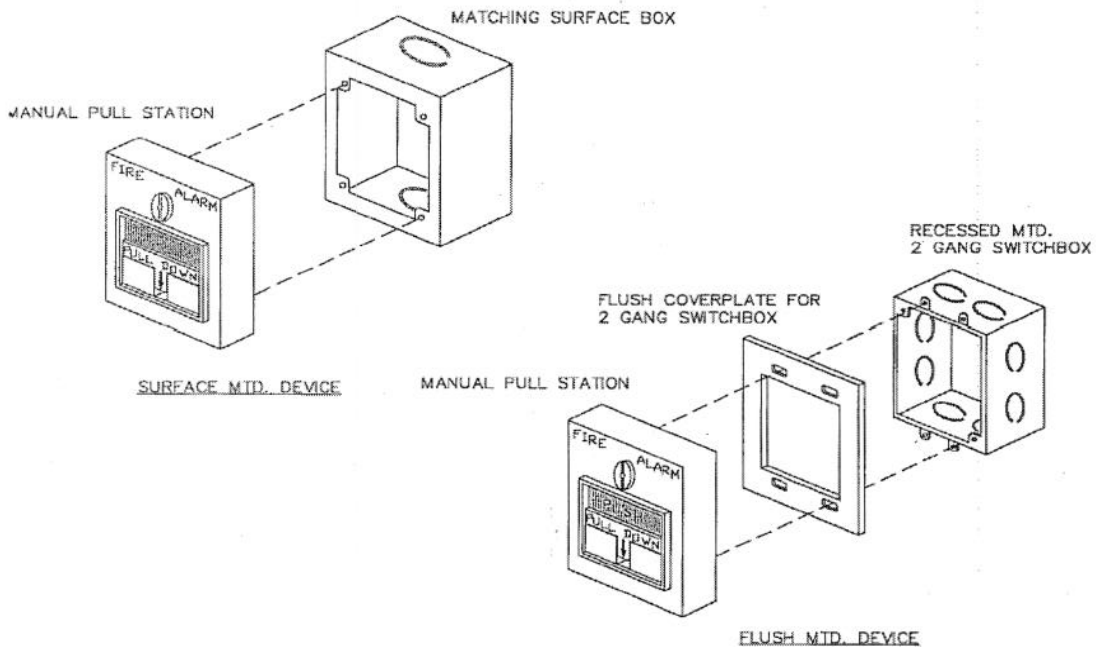
The Design Components are embodied in certain detail drawings, listings of abbreviations, and symbols excerpted from design schematics for the wiring and/or installation of common components of a building's electrical and utility systems. (Compl. Exhibit A.) For example, KSA claims a copyright in a drawing of a typical building water main:



(Compl. Ex. A p. 17.)



KSA claims a copyright in the depiction of a common fire alarm pull:



(Compl. Ex. A p. 30.)

Likewise, KSA claims a copyright in the list of abbreviations that include BTU for British Thermal Unit, CATV for cable television, GC for general contractor, HVAC for heating and ventilation contractor, N/A for not applicable, QTY. for quantity, TYP. for typical, W/ for with, and W/O for without. (Compl. Ex. A p. 35.) These drawings, symbols, and abbreviations are commonly found in publicly available sources such as the National Electrical Contractors Association's ("NECA") *National Electrical Installation Standards: Symbols for Electrical Construction Drawings*. (A true and correct copy is attached hereto as **Exhibit 1**.)<sup>2</sup>

<sup>2</sup> The fact that this NECA publication exists may be judicially noticed by this Court under Federal Rule of Evidence 201 as it is not reasonably in dispute and readily verifiable from NECA itself. See FED. R. EVID. 201; *Ochana v. Flores*, 199 F. Supp. 2d 817, 831 (N.D. Ill. 2002). See <http://www.neca-neis.org/standards/index.cfm?fuseaction=general&subcategory=32> for listing of NECA publications including *National Electrical Installation Standards: Symbols for Electrical Construction Drawings*.

These so-called Design Components were created as part of plans, specifications and drawings prepared by KSA to be used in construction projects by KSA's architects and engineers. (Compl. ¶¶ 9, 13, 15, 16.) Mr. Kim assisted Mr. Kluber in creating, organizing and refining the Design Components for KSA. (Compl. ¶ 18.) KSA contends that, because each plan, specification and drawing is only as good as its composite parts, the quality of the Design Components is important to the success of the overall plans and specifications used in a construction project. (Compl. ¶¶ 16, 17.)

KSA does not allege that it registered or attempted to register its copyrights in the Design Components with the U.S. Copyright Office, nor does KSA attach copyright registrations for any of the Design Components. Instead, KSA, contends that its "copyright interest" in the Design Components is "evidenced" by KSA's registered copyrights on certain architectural works (i.e., buildings – not designs or plans) obtained by KSA in 2007, years after Mr. Kim left KSA's employ. (Compl. ¶ 12, Exhibit B.)

**C. KSA's Lack Of Efforts To Protect The Confidentiality Of Its Design Components**

KSA considers the "Design Components" part of its intellectual capital and trade secrets, amassed over the years that it and its predecessor companies have been in business. (Compl. ¶ 17.) KSA protects this intellectual capital with computer passwords and other unspecified security measures. (Compl. ¶ 19.) KSA did not require Mr. Kim to execute a confidentiality agreement, nor did KSA implement any policies intended to protect the confidentiality of its intellectual capital other than computer passwords. Nor did KSA mark the Design Components as confidential or identify them as proprietary to KSA. (See Compl. Exhibit A.)

Although KSA provided Mr. Kim with access to the design elements in 2002, the only reference in KSA's complaint to any action taken by KSA to inform Mr. Kim that KSA's plans

and technical designs are confidential and proprietary to KSA occurred during KSA's exit interview with Mr. Kim on Mr. Kim's last day of employment with KSA. (Compl. ¶ 23, Exhibit C.) The employee exit interview form does not define or specify what constitutes "plans, specs and work product" and does not refer to any employment agreement or KSA policy that defines what information KSA deemed confidential and proprietary. (*Id.*)

In fact, KSA prepares its architectural and engineering plans to be used in the construction of buildings. (Compl. ¶¶ 15, 16.) The Design Components are part of the architectural plans that culminated in the completed architectural works subsequently copyrighted by KSA, shown in Exhibit B to KSA's complaint. (Compl. ¶ 12, Exhibit B.) Accordingly, the Design Components were shown to contractors, subcontractors, the governmental and/or commercial entities for whom the plans were created, as well as the governmental entities required to approve the construction plans. (*Id.*) The Design Components were also attached to and publicly filed with KSA's complaint with this Court. (Compl. Exhibit A.)

**D. Mr. Kim and Cordogan Allegedly Infringe KSA's Copyright and Misappropriate KSA's Design Components**

According to KSA, in or about 2004, Cordogan "actively pursued, recruited, and hired" Mr. Kim away from KSA. (Compl. ¶ 22.) On or about April 12, 2004, Mr. Kim left KSA's employ. However, before Mr. Kim left KSA, Mr. Kim allegedly copied from KSA's computers and retained various design components belonging to KSA. (Compl. ¶¶ 24, 82.) Sometime in 2004, after Mr. Kim joined Cordogan, Mr. Kim and Cordogan utilized the Design Components in Cordogan's plans for the Vaughn Center Facility. (Compl. ¶¶ 26, 30.) In 2004, Cordogan published its plans for the Vaughn Center Facility. (Compl. ¶ 28.) However, although Cordogan published its plans for the Vaughn Center Facility in 2004, KSA did not discover



Cordogan's and Mr. Kim's use of the Design Components in their plans for the Vaughn Center until 2008, when KSA was hired to review issues at the Vaughn Center Facility. (Compl. ¶¶ 27, 30.) When KSA reviewed the Vaughn Center Facility plans, it determined that copies of certain of KSA's Design Components were included in Cordogan's plans for the Vaughn Center Facility. (Compl. ¶ 30.)

### **III. ARGUMENT**

#### **A. Legal Standard for Motion to Dismiss**

While a motion to dismiss under Rule 12(b)(1) considers only whether the court has jurisdiction to hear a particular cause of action, the purpose of a motion to dismiss under Rule 12(b)(6) is to test the legal sufficiency of a complaint. FED. R. CIV. P. 12(b)(1), 12(b)(6). In doing so, the court should accept as true all *well-pleaded* factual allegations and any *reasonable* inferences apparent on the face of the complaint. *See, e.g., Tobin for Governor v. Ill. State Bd. of Elections*, 268 F.3d 517, 521 (7th Cir. 2001). This does not mean that the court is required to accept conclusions of law or conclusory factual allegations not supported by allegations of specific facts. *Id* Ultimately, dismissal is appropriate if the plaintiff puts forth no set of facts that would entitle it to relief. *Griffin v. Sutton Ford, Inc.*, 452 F. Supp. 2d 842, 845 (N.D. Ill. 2006). Under these standards, KSA's entire complaint fails.

#### **B. KSA Fails To State A Cause Of Action For Copyright Infringement In Count I Of Its Complaint**

KSA's copyright infringement claim (Count I), must be dismissed under Federal Rule of Civil Procedure 12(b)(1) since KSA failed to allege or otherwise attach proof that it registered or preregistered its claimed copyright in the Design Components and, therefore, this court lacks jurisdiction to hear KSA's claim. Moreover, to the extent the alleged infringement took place prior to registration, KSA is barred from obtaining statutory damages and attorney's fees.



# 1. This Court Lacks Jurisdiction To Hear KSA's Copyright Claim

Section 411(a) of the federal Copyright Act, 17 U.S.C. 101 *et seq.*, provides that “no action for infringement of the copyright in any United States work shall be instituted until preregistration or registration of the copyright claim has been made in accordance with this title.” 17 U.S.C. § 411(a). Absent such preregistration or registration, the district court lacks subject matter jurisdiction over the copyright claim. *See Brooks-Ngwenya v. Thompson*, 202 Fed. Appx. 125, 126 (7th Cir. 2006) (valid copyright registration on material allegedly infringed is prerequisite for maintaining copyright infringement suit); *Automation by Design, Inc. v. Raybestos Prods. Co.*, 463 F.3d 749, 752 n.1 (7th Cir. 2006) (same); *Chicago Bd. of Educ. v. Substance, Inc.*, 354 F.3d 624, 631 (7th Cir. 2003) (recognizing that copyright must be registered before suit may be filed).

Rather than alleging that it has registered its copyright in the Design Components, KSA claims that it has a *copyright interest* in the Design Components. (Compl. ¶ 12.) In what appears to be an attempt to mislead the Court, KSA attaches its copyright registrations for architectural *works*, not architectural *plans* or *drawings*. However, as shown in Section 2(a) of the registration forms attached as Exhibit B to KSA's complaint, the U.S. Copyright Office recognizes that the copyright to technical drawings are separate and distinct from the copyright to architectural works. (See Compl. Exhibit B); *see also* U.S. Copyright Office, Circular 41, Revised July 2006, available at [www.copyright.gov/circs/circ41.pdf](http://www.copyright.gov/circs/circ41.pdf) (noting that separate registrations are required for architectural works and architectural plans) (attached hereto as **Exhibit 2**).<sup>3</sup>

<sup>3</sup> This court may take judicial notice of public documents for purposes of a Rule 12(b)(6) motion to dismiss. *See Palay v. United States*, 349 F.3d 418, 425 n.5 (7th Cir. 2003) (explaining trial court may properly take judicial notice of government document when considering Rule 12(b)(6)

The distinction between the two copyrights is important. The U.S. Copyright Office has stated that separate registrations for architectural works and architectural plans are required. *See Ex. 2*, Circular 41. Likewise, this court has recognized that the transfer of one's copyright in an architectural *work* does not transfer one's copyright in architectural *plans*. *See, Reinke + Associates Architects Inc. v. Cluxton*, No. 02 C 0725, 2003 WL 1338485 (Mar. 18, 2003) (Zagel, J.) (noting distinction under copyright law for architectural works and architectural plans); *see also Hunt v. Pasternack*, 192 F.3d 877, (9th Cir.1999) (noting distinction between copyright in plans and copyright in architectural works). It follows that registration of a copyright for an architectural work (the completed physical structure) does not allow the holder to sue for copyright infringement of discrete elements of the unregistered architectural plans.

Because KSA has not registered its claimed copyright in the Design Components, this court has no jurisdiction over KSA's copyright claim and, therefore, Count I must be dismissed. *Burns v. Rockwood Distributing Co.*, 481 F. Supp. 481 (N.D. Ill. 1979) (dismissing plaintiff's copyright claim for want of jurisdiction where plaintiff did not plead or attach proof of copyright registration).

**2. KSA Cannot Recover Statutory Damages Or Attorneys Fees For Infringement Prior To Registration Nor Can It Recover Punitive Damages**

Should KSA register the Design Components, KSA would still be barred from obtaining statutory damages and attorney's fees arising from any claimed infringement prior to that registration. *See Budget Cinema, Inc. v. Watertown Associates*, 81 F.3d 729, 733 (7th Cir. 1996) (explaining that statutory damages and attorney's fees not available for infringement occurring prior to copyright registration). Even assuming, *arguendo*, that KSA's registrations in

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motion to dismiss); *Amakua Dev. LLC v. Warner*, 411 F. Supp. 2d 941, 951 (N.D. Ill. 2006) (same).

certain architectural works could provide this court with jurisdiction to hear KSA's claims, KSA would be limited to actual damages for any infringement that occurred prior to the registration dates. *Id.* As KSA's registrations are all dated sometime in 2007, and Cordogan's and Mr. Kim's alleged infringement took place before 2007, KSA is precluded from recovering statutory damages and attorney's fees.

Likewise, KSA is barred from obtaining punitive damages as the Copyright Act makes no provision for such damages. *Id.* (citing *Hays v. Sony Corp. of Am.*, 847 F.2d 412, 415 (7th Cir. 1988)). For these reasons, KSA's copyright claim, to the extent it seeks statutory damages, attorney's fees and punitive damages, must be dismissed. *Id.*

**C. KSA Has Not Stated A Cause Of Action Under The Illinois Trade Secrets Act In Count II Of Its Complaint**

KSA seeks to impose liability under the Illinois Trade Secret Act (765 ILCS 1065/1 *et seq.*) ("ITSA") on the basis that the Design Components are KSA trade secrets. ( Compl. ¶¶ 49-59.) The ITSA provides in relevant part:

(d) "Trade secret" means information, including but not limited to, technical or non-technical data, a formula, pattern, compilation, program, device, method, technique, drawing, process, financial data, or list of actual or potential customers or suppliers, that:

- (1) is sufficiently secret to derive economic value, actual or potential, from not being generally known to other persons who can obtain economic value from its disclosure or use; and
- (2) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy or confidentiality.

765 ILCS 1065/2(d). Accordingly, KSA must allege, among other things, that it took reasonable measures to maintain the "secrecy" of the alleged trade secrets. *Id.*; *see also Learning Curve Toys, Inc. v. Playwood Toys, Inc.*, 342 F.3d 714, 721-22 (7th Cir. 2003) (trade secrets must be subject to reasonable efforts to maintain confidentiality); *Magellan Int'l Corp. v. Salzgitter*



*Handel GmbH*, 76 F. Supp. 2d 919, 926-27 (N.D. Ill. 1999) (same).

In *Magellan*, the plaintiff alleged that its purported trade secrets were “the subject of reasonable efforts to maintain their secrecy.” 76 F. Supp. 2d at 927. The court found that this allegation was insufficient and dismissed the claim because, although notice pleading “makes conclusory allegations permissible, such mere rote repetition of the statutory language does not suffice.” *Id.* (internal quotation and citation omitted); *see also Abbott Lab. v. Chiron Corp.*, No. 97 C 0519, 1997 WL 208369 (N.D. Ill. Apr. 21, 1997) (dismissing trade secret claim because “[a] complaint without any factual allegations regarding the plaintiff’s efforts to maintain the confidentiality of their alleged trade secret cannot withstand a motion to dismiss”) (citing cases).

KSA’s complaint establishes that no such efforts took place. While KSA alleges that its purported trade secret “was subject to reasonable security measures to maintain secrecy and confidentiality” (Compl. ¶ 51), the only measure identified by KSA anywhere in the Complaint is that KSA’s computers are password protected. (Compl. ¶ 19.) KSA’s trade secret claim is hardly any different from the inadequate claim found in *Magellan* and, as in that case, KSA’s claim should be dismissed.

In addition, KSA’s factual allegations contradict its conclusory assertion that the “Design Components” were subject to reasonable efforts to maintain their secrecy. KSA’s Complaint acknowledges that the “Design Components” are incorporated into publicly filed plans, and that such plans are disclosed to contractors, subcontractors, public entities required to review such plans prior to the grant of building permits, and others who may need to review the plans during the process of constructing the building. (Compl. ¶¶ 9, 15, 16, 27, 29.) KSA does not require employees to execute confidentiality agreements, nor does it mark its claimed “secrets” as confidential. (Compl. Exhibit A.) Most tellingly of all, KSA attached the “Design Components”



(which have no marking identifying them as confidential) to its complaint, publicly filed the complaint, and served the complaint, with its attached Design Components, on Cordogan and Mr. Kim – the very persons KSA contends would profit from such access. (Compl. Exhibit A.) These facts, considered together, foreclose any possibility that the Design Components are trade secrets within the meaning of Section 1065/2(d). *See Web Communications Group, Inc. v. Gateway 2000, Inc.*, 889 F. Supp. 316 (N.D. Ill. 1995) (industry custom and implicit assumption of confidentiality insufficient to protect secrecy of alleged trade secrets); *Abbott Lab. v. Chiron Corp.*, No. 97 C 0519, 1997 WL 208369, at \*3 (N.D. Ill. Apr. 21, 1997) (“[a] complaint without any factual allegations regarding the plaintiff’s efforts to maintain the confidentiality of their alleged trade secret cannot withstand a motion to dismiss”); *see also BondPro Corp. v. Siemens Power Generation, Inc.*, 463 F.3d 702, 706 (7th Cir. 2006) (“A trade secret that becomes public knowledge is no longer a trade secret.”); *Crane Helicopter Svcs., v. United States*, 56 Fed. Cl. 313, 324 (2003) (public filing of alleged trade secrets with court probative of whether information is entitled to trade secret protection).

Moreover, it is apparent from simply looking at the Design Components that much of the information claimed to be trade secret is well-known within the electrical engineering and architecture fields, as the details depict electrical components commonly installed in every commercial or public building and, therefore, such design details must be readily available from other sources. This further militates against any possibility of finding that the Design Components are trade secrets, and mandates dismissal of KSA’s trade secrets claim. *See Nilssen v. Motorola, Inc.*, 963 F. Supp. 664 (N.D. Ill. 1997) (holding that information known within the industry is not trade secret material).

Because the Design Components are not subject to reasonable efforts to maintain secrecy

and they depict common electrical components found in nearly every public or commercial building plan drafted, the Design Components cannot be deemed trade secrets, and Count II of KSA's complaint must be dismissed. *George S. May Intern. Co. v. Int'l Profit Assoc.*, 256 Ill. App. 3d 779 (1st Dist. 1993) (no trade secrets where plaintiff provided alleged trade secrets to others without requiring confidentiality agreements, and much information claimed to be trade secret was commonly known).

**D. KSA's Computer Fraud And Abuse Act Claim In Count VI Fails To State A Cause Of Action**

KSA fails to allege jurisdictional facts necessary to state a cause of action in Count VI of its complaint under the Computer Fraud & Abuse Act, 18 U.S.C. § 1030 *et seq.* ("CFAA"). The CFAA requires a plaintiff to plead either damage or loss to properly allege a civil violation and absent adequate allegations of loss and damage, a complaint must be dismissed. 18 U.S.C. § 1030(g) ("Any person who suffers damage or loss by reason of a violation of this section may maintain a civil action against the violator to obtain compensatory damages and injunctive relief or other equitable relief"); *see also Garelli Wong & Assocs., Inc. v. Nichols*, 07 C 6227, 2008 U.S. Dist. LEXIS 3288, (N.D. Ill. Jan. 16, 2008); *Chas. S. Winner, Inc. v. Polistina*, No. 06-4865 (NHL), 2007 U.S. Dist. LEXIS 40741, (D.N.J. June 4, 2007) (explaining need to plead jurisdictional facts regarding damages and loss to state CFAA claim); *Civic Center Motors, Ltd. v. Mason Street Import Cars, Ltd.*, 387 F. Supp. 2d 378, 381-82 (S.D.N.Y. 2005) (allegations of lost profits and lost competitive standing insufficient to establish jurisdictional "damages" or "loss" under CFAA); *Resdev, LLC v. Lot Builders Assoc., Inc.*, No. 6:04-cv-1374-Orl-31DAB; 2005 U.S. Dist. LEXIS 19099, (M.D. Fla. Aug. 10, 2005) (construing CFAA's provisions regarding "loss" and "damages").

Damage, for purposes of the CFAA, means "*impairment to the integrity or availability of*

data, a program, a system, or information.” 18 U.S.C. § 1030(e)(8) (defining “damage”) (emphasis added). Loss, for purposes of the CFAA, means the reasonable costs (in excess of \$5,000.00) incurred from “responding to an offense, conducting a damage assessment, and restoring the data, program, system, or information to its condition prior to the offense, and any revenue lost, cost incurred or other consequential damages incurred *because of the interruption of service*.” 18 U.S.C. § 1030(e)(11) (defining “loss”) (emphasis added).

KSA’s conclusory allegation that it has “suffered monetary losses and irreparable harm” is inadequate to establish the jurisdictional thresholds of “damage” and “loss” under the CFAA. *See, e.g., Nexans Wires S.A. v. Sark-USA, Inc.*, 319 F. Supp. 2d 468, 478 (N.D. Ill. 2004) (dismissing CFAA claim where plaintiff failed to allege facts establishing a loss in excess of \$5,000); *see also Worldspan, L.P. v. Orbitz, LLC*, No. 05 C 5386, 2006 U.S. Dist. LEXIS 26153 (N.D. Ill. Apr. 19, 2006) (dismissing CFAA claim where plaintiff’s conclusory allegation of “damage” or “loss” failed to establish jurisdictional threshold).

Moreover, KSA’s complaint establishes that it *cannot* plead either damage or loss as required to bring a claim under the CFAA. There clearly was no impairment to or interruption of KSA’s computer systems caused by Mr. Kim’s allegedly unauthorized access and copying as KSA did not discover Mr. Kim’s so-called violation of the CFAA until over four years after the alleged misconduct took place. (Compl. ¶ 27.) KSA’s “discovery” of the unauthorized access was not based on any investigation into a breach or interruption of its computer systems, but was due to its review of Cordogan’s plans for the Fox Valley Park District’s Vaughn Center Facility. (*Id.*) Nor did KSA lose any data due to Mr. Kim’s unauthorized access and copying; KSA evidently did not miss any of this data during the four years it took to discover the alleged copying and attached the very information it contends Mr. Kim took as Exhibit A to its



Complaint. (Compl. ¶¶ 9, 27, Exhibit A.) All KSA alleges is that it was damaged by the mere taking of information. This is not enough. *Worldspan*, 2006 U.S. Dist. LEXIS 26153 at \*14 (rejecting plaintiff's argument that mere taking of information constitutes "damage" under CFAA).

Likewise, KSA has not alleged any facts that establish it incurred a loss in excess of \$5000 due to Mr. Kim's allegedly unauthorized access and copying of data from KSA's computers. The mere copying of electronic data, which is all that KSA alleges, is inadequate to establish "loss" under the CFAA. *See Chas. S. Winner*, 2007 U.S. Dist. LEXIS 40741 (meaning of "loss" under CFAA is "cost of investigating or remedying damage to a computer, or a cost incurred because the computer's service was interrupted").

Because KSA has not and cannot allege facts establish "loss" or "damage" under the CFAA, Count VII of the complaint must be dismissed with prejudice. *See Hasan v. Foley & Lardner, LLP*, No. 04 C 5690, 2007 U.S. Dist. LEXIS 54930, (N.D. Ill. Jul. 26, 2007) (Zagel, J.) (rejecting CFAA claim where claimant could not establish loss or damages required by CFAA); *Cenveo Corp. v. CelumSolutions Software GMBH & CO KG*, 504 F. Supp. 2d 574, 581 (D. Minn. 2007) (dismissing CFAA claim with prejudice where plaintiff could not establish "loss" or "damage").

**E. KSA's State Law Claims Are Preempted By The Illinois Trade Secrets Act And The Federal Copyright Act<sup>4</sup>**

Both the Illinois Trade Secrets Act and the federal Copyright Act expressly preempt certain state law causes of action. The ITSA preempts "conflicting tort, restitutionary, unfair competition, and other laws of this State providing civil remedies for misappropriation of a trade

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<sup>4</sup> To the extent that Count V, alleging Conversion, relies on allegations of criminal activity by Cordogan and Mr. Kim, those allegations should be stricken since Illinois does not recognize a separate *civil* cause of action for *criminal* theft.



secret.” 765 ILCS 1065/8(a). The Section 301(a) of the federal Copyright Act displaces all state common law or statutes providing any right or equivalent right conferred by the Copyright Act. 17 U.S.C. § 301(a). As each of KSA’s state law claims are predicated upon the alleged misappropriation of KSA’s trade secrets and/or the infringement of KSA’s copyright, each of these state law claims are preempted by one or both statute and must be dismissed.

**1. KSA’s State Common Law Claims Are Preempted By The Illinois Trade Secret Act**

KSA’s state common law claims are preempted by the Illinois Trade Secrets Act because each common law claim depends on Mr. Kim’s and Cordogan’s alleged misappropriation of trade secrets. 765 ILCS 1065/8(a); *see Labor Ready, Inc. v. Williams Staffing, LLC*, 149 F. Supp. 2d 398 (N.D. Ill. 2001) (dismissing tortious interference and unfair competition claims as preempted by ITSA); *Thomas & Betts Corp. v. Panduit*, 108 F. Supp. 2d 968, 972-974 (N.D. Ill. 2000) (finding ITSA preempted plaintiffs’ breach of fiduciary duty, unfair competition, conversion and tortious interference claims).

In *Thomas and Betts*, plaintiff brought claims of breach of fiduciary duty, conversion, unfair competition, and tortious interference with business relations claims against defendant, as well as a claim under ITSA. 108 F. Supp. 2d at 970-971. The district court held that, because each of these common law claims were based on defendant’s misappropriation of plaintiff’s trade secrets, the common law claims were preempted by ITSA. *Id.* at 972-974. Although plaintiff argued that the information allegedly misappropriated may not be proven to be trade secrets at trial, and that defendant also took the disks containing the confidential information, therefore, the claims should not be preempted, the court rejected this argument, explaining that the computer disks had no value except for the information contained in them, and to hold otherwise would eviscerate ITSA’s preemption provision. *Id.* at 972-973.

So too here. In this case, as in *Thomas & Betts*, KSA's breach of fiduciary duty, inducing breach of fiduciary duty, conversion, unfair competition and tortious interference claims are each predicated upon Cordogan's and Mr. Kim's alleged taking and use of KSA's trade secret Design Components. Accordingly, these claims must be dismissed. *Thermodyne Food Service Products, Inc. v. McDonald's Corp.*, 940 F. Supp. 1300, 1309 (N.D. Ill. 1996) (dismissing breach of fiduciary duty claim as preempted by Illinois Trade Secrets Act).

## 2. KSA's State Law Claims Are Preempted By The Federal Copyright Act

To the extent that KSA's state law claims rely on Cordogan's or Mr. Kim's alleged copying and passing off of KSA's allegedly copyrighted works as their own, those claims are preempted under Section 301(a) of the Copyright Act, 17 U.S.C. § 301(a), and must be dismissed.

The federal Copyright Act preempts all legal or equitable rights that are (i) equivalent to any of the exclusive rights specified by Section 106 and (ii) found in works of authorship that are fixed in a tangible medium of expression and come within the subject matter of copyright as specified by sections 102 and 103. 17 U.S.C. § 301(a); *Baltimore Orioles, Inc. v. Major League Baseball Players Ass'n*, 805 F.2d 663, 676 (7th Cir. 1986), *cert. denied*, 480 U.S. 941 (1987).

Section 106 of the Copyright Act provides the copyright owner with the exclusive right to reproduce the copyrighted work, prepare derivative works based on the copyrighted work, to sell, transfer or lease the copyrighted work, and to perform and display the copyrighted work publicly. *See, e.g., Reinke & Assoc. Architects, Inc. v. Cluxton*, No. 02 C 0725, 2003 WL 1338485, \*2 (N.D. Ill. Mar. 18, 2003). The Seventh Circuit has explained that a state right is "equivalent" to the rights found in Section 106 if (a) it is infringed by the mere act of reproduction, performance, distribution, or display (i.e., it falls within the scope of the rights

outlined in § 106); or (b) it requires additional elements to make out a cause of action, but those additional elements do not differ in kind from those necessary for copyright infringement. *See Baltimore Orioles*, 805 F.2d at 677-78 n. 26.

In this case, KSA alleges it owns the copyright to the Design Components. (Compl. ¶ 9.) These works are fixed in tangible form, and arguably fall within the subject matter of either Section 102 of the Copyright Act, to the extent they are original technical drawings, or Section 103 of the Copyright Act, to the extent they are copyrightable as compilations and/or derivative works.<sup>5</sup> 17 U.S.C. §§ 102, 103. Accordingly, KSA's common law claims against Cordogan and Mr. Kim are preempted by the Copyright Act if the rights asserted in KSA's state law claims are infringed by Cordogan's and/or Mr. Kim's reproduction, performance, distribution or display of the Design Components.

Each of KSA's state common law claims are predicated on Cordogan's and Mr. Kim's unauthorized copying and use of the allegedly copyright-protected Design Components. Each of KSA's state law claims expressly incorporate KSA's copyright claims. (*See* Compl. ¶ 60 (breach of fiduciary duty); ¶ 65 (inducing breach of fiduciary duty); ¶ 70 (conversion); ¶ 88 (tortious interference); and ¶ 94 (unfair trade practices).) Each claim also includes allegations that Defendants' unauthorized copying and passing off of KSA's original work as Cordogan's or Kim's own caused KSA damage. (*See* Compl. ¶ 63 (breach of fiduciary duty); ¶ 68 (inducing breach of fiduciary duty); ¶ 76 (conversion); ¶¶ 92-93 (tortious interference); and ¶ 100 (unfair trade practices).)

Because protection against the unauthorized copying and passing off of that copied work as one's own is the core of the rights provided by Section 106 of the Copyright Act, KSA's

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<sup>5</sup> Cordogan and Mr. Kim do not concede that the Design Components are copyrightable as original or as derivative works.



common law claims are preempted by the federal Copyright Act. For example, in *Balsamo/Olson Group, Inc. v. Bradley Place L.P.*, 950 F. Supp. 896 (C.D. Ill. 1997), plaintiff alleged a tortious interference with prospective economic advantage claim based on defendant's copying of plaintiff's architectural drawings. The court held that the federal Copyright Act preempted plaintiff's tortious interference claim. *Id.* at 899; *see also Quadro Enter., Inc. v. Avery Dennison Corp.*, No. 97 C 5402, 1999 WL 759488, (N.D. Ill. Sept. 8, 1999) (noting that Copyright Act preempts tortious interference claim that depends on unauthorized publication of copyrighted work). That is precisely the situation here.

KSA's remaining claims fair no better. All depend on Cordogan's and Mr. Kim's copying, use and passing off of the allegedly copyrighted Design Components and, therefore, are preempted. *See, e.g., Peter Rosenbaum Photography Corp. v. Otto Doosan Mail Order Ltd.*, No. 04 C 0767, 2005 WL 2387687, (N.D. Ill. Sept. 26, 2005) (dismissing common law claims not qualitatively different than copyright claim); *Reinke & Assoc. Architects, Inc. v. Cluxton*, No. 02 C 0725, 2003 WL 1338485, \*2 (N.D. Ill. Mar. 18, 2003) (finding plaintiff's unfair competition claim preempted where claim relied on misrepresentation inherent in act of copying copyrighted work); *Higher Gear Group, Inc. v. Rockenback Chevrolet Sales, Inc.*, 223 F. Supp. 2d 953, 959 (N.D. Ill. 2002) (dismissing unfair competition and tortious interference claims as preempted); *Igram v. Page*, No. 98 C 8337, 2000 WL 263707 (N.D. Ill. Feb. 27, 2000) (preempting state law claims where plaintiff alleged only that defendant used copied work to his advantage and plaintiff's detriment); *Pritikin v. Liberation Publications, Inc.*, 83 F. Supp. 2d 920, 923 (N.D. Ill. 1999) (finding Copyright Act preempted state law conversion claim);

#### IV. CONCLUSION

For the above-stated reasons, KSA's complaint must be dismissed in its entirety and Counts II-VIII dismissed with prejudice and Cordogan granted any other just and appropriate relief.

Respectfully submitted,

CORDOGAN, CLARK & ASSOC., INC. and  
JEYEONG KIM

By: s/ \_\_\_\_\_  
One of Their Attorneys

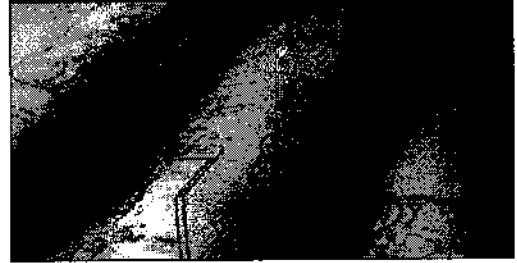
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Dated: April 7, 2008

**EXHIBIT 1 TO EXHIBIT A TO MOTION FOR LEAVE  
TO FILE BRIEF IN EXCESS OF 15 PAGES IN SUPPORT OF  
DEFENDANTS' MOTION TO DISMISS COMPLAINT**

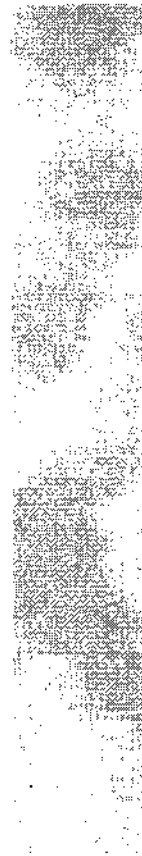


AMERICAN NATIONAL STANDARD

**NECA 100-1999**



# Symbols for Electrical Construction Drawings



Published by  
National Electrical  
Contractors Association



*(This foreword is not a part of the American National Standard)*

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NECA 100  
SYMBOLS FOR ELECTRICAL CONSTRUCTION DRAWINGS

NECA 100 SYMBOLS FOR ELECTRICAL CONSTRUCTION DRAWINGS



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**1.0 SCOPE**

This publication describes graphic symbols used to represent electrical wiring and equipment on construction drawings. In this publication, the term “electrical” is used to include electrical, electronic, and communications systems covered by the National Electrical Code (NFPA 70). This publication also summarizes recommended drawing practices for electrical construction drawings.

**1.1 SYMBOLS INCLUDED**

This standard is limited to North American symbols for electrical wiring and equipment.

**1.2 SYMBOLS NOT INCLUDED**

Symbols from publications of the International Electrotechnical Commission (IEC) are not included in this standard.

Symbols for equipment and systems not covered by the National Electrical Code are not included in this standard.

**2.0 PURPOSE OF SYMBOLS**

Symbols are a shorthand way of showing the locations, types, and sizes or ratings of electrical wiring and equipment, and the interrelationships between these items. It should be emphasized that drawings need to be supplemented with specifications in order to establish the details of the electrical systems.

**2.1 ORGANIZATION OF THIS STANDARD**

This standard contains symbols commonly and primarily used on electrical construction drawings. Related symbols are organized into different groups, and each symbol within a group has its own unique identifying number. The group and symbol numbers are not significant except as a convenient way to identify individual symbols.

**SYMBOL GROUPS**

- 1.0 Raceways
  - 1.1 Raceways - Indicators
  - 1.2 Raceways - Boxes and Busways
- 2.0 Lighting Fixtures
- 3.0 Outlets and Receptacles
- 4.0 Switches and Sensors
- 5.0 Motorized & HVAC Equipment - Controls
  - 5.1 Motorized & HVAC Equipment
- 6.0 Security
- 7.0 Fire Alarm Communications & Panels
  - 7.1 Fire Alarm Indicators
  - 7.2 Fire Alarm Sensors
- 8.0 Power Distribution Equipment
- 9.0 Communications - Teledata
  - 9.1 Communications - Audio/Visual
  - 9.2 Communications - Equipment
- 10.0 Site Work
- 11.0 Schematic and One-Line Diagram Symbols
  - 11.1 One-Line Diagram Symbols - Switchboard Meters
  - 11.2 Schematic and One-Line Symbol Diagrams - Switches
- 12.0 Miscellaneous
- 13.0 Abbreviations

## **2.2 ALTERNATE FIRE SAFETY SYMBOLS**

The fire protection industry has developed and published symbols, not all of which are currently in widespread use on electrical construction drawings. They are shown for reference in Annex A.

## **2.3 REFERENCES**

This publication does not include every known North American symbol for electrical equipment shown on construction drawings. Some older symbols are either becoming obsolete over time or have been superseded by newer symbols (which are shown in this publication). Some electrical symbols are not widely used on construction drawings, but usually on wiring schematics and other types of more specialized drawings. Other drawing symbol standards and publications are listed for reference in Annex C.

# **3.0 DRAFTING PRACTICES FOR ELECTRICAL CONSTRUCTION DRAWINGS**

## **3.1 SYMBOL DESIGN AND PRESENTATION**

1. The symbols in this standard are widely understood by those in the electrical design and construction field. Other symbols may also be used, provided that a suitable explanation of their meaning is included on the drawing where that symbol is used, or on a symbol legend sheet.
2. The orientation of a symbol on a drawing does not alter the meaning of the symbol.
3. Every symbol making up part of an electrical circuit must begin with and end with another symbol. When a circuit continues on a different drawing, the end of the circuitry symbol must be appropriately noted on both drawings. This circuitry continued notice is necessary for both vertical and horizontal circuits.
4. Circuitry symbols may cross one another at any angle.
5. The angle at which a circuitry symbol meets another symbol has no particular significance unless otherwise noted. Circuits normally meet one another at a junction box, pull box, or piece of electrical utilization or communications equipment.
6. Future circuits and future equipment should be indicated by dashed lines and clearly marked as future circuits or future equipment on every drawing where applicable.
7. Lighting symbols should be drawn whenever possible in their appropriate proportions, orientation, and shape. Where a lighting symbol drawn to scale is too small to reproduce clearly, the symbol may be enlarged to an appropriate size while maintaining proportion and orientation.

## **3.2 GENERAL DRAFTING PRACTICES**

1. Electrical systems should be shown on plans separate from the architectural, structural, mechanical, and other systems. For clarity, it is recommended that the electrical symbols be drawn darker than the background drawing showing the building structure and/or other systems.
2. Different electrical systems such as power distribution, lighting, voice/data, fire alarm, and security/access control should be shown on separate plans if combining them on the same drawings would reduce clarity.

3. Electrical plans are generally drawn to scale. However, graphic symbols indicate only the approximate locations of electrical equipment. Provide dimensions, details, elevations, and sections where accurate locations of outlets, lighting fixtures, and other equipment are required.
4. Electrical wiring required for other systems such as HVAC, manufacturing equipment, data processing systems, etc, should be shown on the electrical drawings where practical, if the installation is included in the electrical contract.

### 3.3 CADD PRACTICES

The following drafting practices are recommended when using computer-aided design and drafting (CADD) systems to prepare electrical construction drawings.

1. All CADD electrical construction drawings should be created at full scale, (1" = 1"), and should be plotted at an appropriate scale on uniform sheets of sufficient size and separate from architectural, structural, mechanical or other drawings. Within a single drawing set, the drawing scale should be the same on as many drawings as possible.
2. All electronic files should include no more than one floor level of a building per electronic file. In no case should two different floors of any building be included in one electronic file.
3. Architectural, structural or mechanical items on the electrical construction drawings should be plotted with lighter weight lines than the electrical items.
4. Electronic files should use blocks (or cells) for all symbology. Blocks (or cells) should use a uniform scale. Non-uniformly scaled blocks and nested blocks should not be used. Instead of exploding blocks to achieve a desired graphic effect, create different variations of an existing block to accomplish the graphic symbol appearance needed.
5. No entities should reside on layer 0. This layer is used for referencing of blocks and wblocks only.
6. All entities should be placed on layers related to their disciplines as defined by the *CAD Layer Guidelines* published by the American Institute of Architects. These include Electrical, Plumbing, HVAC, Architectural, Structural, Civil/Site, Mechanical, Process Piping, and Telecommunications/Data. The purpose of using different layers is to rationally develop design using shared drawings. Therefore, it is suggested that the AIA layer naming convention be followed. Ordering information for *CAD Layer Guidelines* is shown in Annex C.

### 3.4 ELECTRICAL CONSTRUCTION DRAWING SET

A typical set of electrical construction drawings includes the following:

1. Plan for each floor, roof, surrounding site, and other area with electrical installations.
2. Site plan(s) showing incoming utility services and substations; exterior transformers; feeders, trunk lines and backbone cables between buildings; and site lighting.
3. Symbol list and abbreviation list.




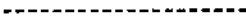











4. Schedule(s) of lighting fixtures, mechanical equipment connections, transformers, etc. as appropriate. Typical schedules are shown in Annex B.
5. Riser and/or one-line diagram(s) for power distribution and other systems, as appropriate. Typical risers and one-line diagrams are shown in Annex B.

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NECA 100 SYMBOLS FOR ELECTRICAL CONSTRUCTION DRAWINGS

**1.0 RACEWAYS**

<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
1.001		Conduit concealed in construction in finished areas, exposed in unfinished areas.
1.002		Conduit concealed in or under floor slab.
1.003		Non-rigid raceway system.
1.004		Normal/emergency circuit.
1.005		Emergency battery system wiring, minimum #10 AWG.
1.006		Heat trace.
1.007		Keep warm trace.
1.008		Underfloor power raceway.
1.009		Underfloor telecommunications raceway.
1.010		Underfloor raceway for power and telecommunications.
1.011		Underfloor signal raceway.
1.012		Underfloor raceway for power, telephone, and data.
1.013		Undercarpet flat conductor cable (FCC) wiring system, power.

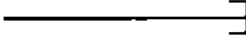
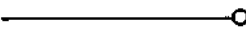
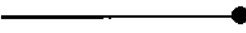
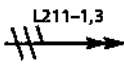


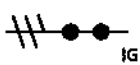
## NECA 100 SYMBOLS FOR ELECTRICAL CONSTRUCTION DRAWINGS

**1.0 RACEWAYS**

<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
1.014	-----UCT-----	Undercarpet flat conductor cable (FCC) wiring system, telephone.
1.015	-----UCD -----	Undercarpet flat conductor cable (FCC) wiring system, data.



## 1.1 RACEWAYS—INDICATORS



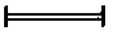

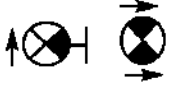


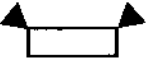

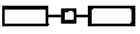
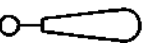

Number	Preferred Symbol	Description
1.101		Conduit stub. Terminate with bushing or cap if underground.
1.102		Conduit turning up.
1.103		Conduit turning down.
1.104	SZ 2C,4#1&1#6GND. OR SZ 53mm,4#1&1#6GND.	Indicates trade size 2" or 53Cm conduit with (4) #1 AWG and (1) #6 AWG ground.
1.105	(2)SZ 2C,4#1&1#6GND. OR (2)SZ 53mm,4#1&1#6GND.	Indicates (2) trade size 2" or 53 Cm conduits with (4) #1 AWG and (1) #6 AWG ground conductors in each conduit.
1.106		Homerun to panelboard. Number of arrows indicates number of circuits. (Example: Homerun to panel L211 ckts. #1 and #3.)
1.107		Flexible connection to equipment.
1.108		Direct connection to equipment.
1.109		Branch circuit, full hashes indicate undergrounded-"hot" (or switch-LEG) circuit conductors. Half hashes indicates grounded neutral circuit conductors. (No hashes indicates 1 hot and 1 neutral.) Dots indicate grounding conductors. Equipment bond size U.O.I. "IG" indicates an isolated grounding conductor.

## NECA 100 SYMBOLS FOR ELECTRICAL CONSTRUCTION DRAWINGS




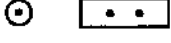



**1.2 RACEWAYS—BOXES AND BUSWAYS**

Number	Preferred Symbol	Description
1.201		Underfloor raceway system junction box, flush floor mounted.
1.202		Power pole with devices indicated in the specifications and on the drawings, "P" indicates type, "2" indicates circuit.
1.203		Telecom pole with devices indicated in the specifications and on the drawings, "T" indicates type.
1.204		Telecom/power pole with devices indicated in the specifications and on the drawings, "TP" indicates type, "2" indicates power circuit.
1.205		Pull box—size as indicated or required.
1.206		Cabletray size as indicated.
1.207		Cabletray size as indicated, concealed.
1.208		Busway with cable tap box, rating and type as indicated on drawings.
1.209		Busway with plug-in device as indicated, shown with fused disconnect.
1.210		Busway feeding up.
1.211		Busway feeding down.
1.212		Busway expansion joint.
1.213		Wireway, size as indicated or required.

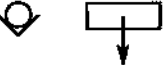
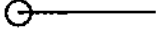
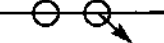
**2.0 LIGHTING FIXTURES**

<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
2.001		Luminaire: (drawn to approximate shape and to scale or large enough for clarity).
2.002		Luminaire strip type (length drawn to scale).
2.003		Fluorescent strip lighting.
2.004		Fixture—double or single head spotlight.
2.005		Exit lighting fixture, arrows and exit face as indicated on DWGS (mounting heights to be determined by job specifications).
2.006		Light track, length as indicated on the drawings, with number of fixtures as indicated on drawings, and as indicated in the fixture schedule.
2.007		Emergency battery remote lighting heads.
2.008		Emergency battery unit with lighting heads.
2.009		Single luminaire pole mounted site lighting fixture.
2.010		Twin luminaire pole mounted site lighting fixture.
2.011		Roadway luminaire—cobra head.
2.012		Bollard type site lighting.


**2.1 LIGHTING FIXTURES—BASIC MODIFIERS-MOUNTING**

Number	Preferred Symbol	Description
2.100		Surface mounted fixture.
		Recessed fixture.
		Wall mounted fixture.
		Suspended, pendant, chain, stem or cable hung fixture.
		Pole mounted with arm.
		Pole mounted on top.
		In-ground or floor mounted. (Box around symbol.)

**2.2 LIGHTING FIXTURES—BASIC MODIFIERS-ORIENTATION**

Number	Preferred Symbol	Description
2.200		Accent/directional arrow, with or without tail. (Drawn from photometric center in direction of optics or photometric orientation.)
		Directional aiming line. (Drawn from photometric center and may be extended to actual aiming point if required.)
		Track mounted; length, luminaire types and quantities as shown. (Track length drawn to scale.)

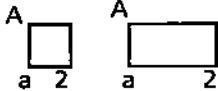

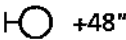


**2.3 LIGHTING FIXTURES—BASIC MODIFIERS-EMERGENCY**

Number	Preferred Symbol	Description
2.300		Luminaire providing emergency illumination. (Filled in.)










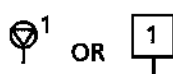



**Note:** Modifiers are shown with specific base symbols for clarity. Each modifier can be used with any of the base symbols.



**2.4 LIGHTING FIXTURES—EXTENDED MODIFIERS**

Number	Preferred Symbol	Description
2.401		Standard designations for all lighting fixtures. "A" = Fixture type, refer to fixture schedule "2" = Circuit number "a" = Switch identification
2.402		Night light.
2.403		Mounting height.
2.404		Louvers.
2.405		Recessed, emergency fixture.

**3.0 OUTLETS AND RECEPTACLES**

Number	Preferred Symbol	Description
3.001	 F	Floor duplex receptacle. F=flush MTD. S=surface MTD.
3.002		Duplex convenience receptacle. 20A 125V. Wall mounted device, at 18" AFF, U.O.I.
3.003	EP-2 CKT.1 	Duplex convenience receptacle on emergency/standby circuit. Specify panelboard and circuit.
3.004		Single convenience receptacle.
3.005	EP-2 CKT.3 	Single convenience receptacle on emergency/standby circuit. Specify panelboard and circuit.
3.006		Double duplex convenience receptacle.
3.007	EP-2 CKT.5 	Double duplex convenience receptacle on emergency/standby circuit. Specify panelboard and circuit.
3.008	 A	Multi-outlet assembly with outlets on centers as indicated on the drawings and in the specifications, mounted 6 inches above counter or at height as directed, A - indicates type.
3.009	 1	Multioutlet assembly, devices as indicated.
3.010	 1 OR 1	Special receptacle - typical notation: 1— indicates example "1" = __A, __/___V., __ Pole, __ Wire, __ NEMA __-__ "2" = __A, __/___V., __ Pole, __ Wire, __ NEMA __-__ "3" = __A, __/___V., __ Pole, __ Wire, __ NEMA __-__
3.011	 C	Clock hanger outlet recessed mounted 8'-0" AFF or 8" below ceiling as appropriate and as directed.
3.012	 F	Flush mounted floor box, adjustable, with both power and voice/data receptacles.
3.013	 J AxBxC	Junction box. "AxBxC" indicates dimensions of junction box in either inches or centimeters.

**3.0 OUTLETS AND RECEPTACLES****Receptacles And Outlets****Typical Outlet Notations:**




- "a" = Switched outlet, "a"—indicates switch control.
- "B" = Pedestal mounted on bench top.
- "BF" = Below floor.
- "C" = Mounted 6" above counter of 42" AFF. Coordinate exact mounting height with architectural drawings.
- "CLG" = Ceiling mounted.
- "D" = Dedicated device on individual branch circuit.
- "E" = Emergency.
- "EXIST." = Existing device/equipment.
- "F" = Flush floor box with fire/smoke rated penetration.
- "GFCI" = Ground fault circuit interrupter, personal protection.
- "GFPE" = Ground fault protection of equipment.
- "H" = Horizontally mounted.
- "IG" = Isolated ground receptacle with separate green ground conductor to isolated ground bus in panel.
- "M" = Modular furniture service—provide flexible connection, coordinate exact location with furniture plans.
- "PED" = Pedestal mounted with two hour fire/smoke rated penetration.
- "PT" = Poke thru with two hour fire/smoke rated penetration.
- "S" = Surface mounted floor box.
- "SP" = Surge protection receptacle.
- "T" = Tamper resistant safety receptacle.
- "TL" = Twist-lock.
- "W" = Wall mounted device at 48" AFF unless otherwise indicated.
- "WP" = Weatherproof receptacle with "NRTL" listed coverplate for wet location with plug installed. MTD. 48" AFF unless otherwise indicated.
- +XX = Dimensioned height.

**4.0 SWITCHES AND SENSORS**

<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
4.001	\$ or S	Single pole switch.
4.002	\$ <sub>2</sub> or S <sub>2</sub>	Double pole switch.
4.003	\$ <sub>3</sub> or S <sub>3</sub>	Three way switch.
4.004	\$ <sub>4</sub> or S <sub>4</sub>	Four way switch.
4.005	\$ <sub>a</sub> or S <sub>a</sub>	Switch control (lower case letter).
4.006	\$ <sub>CB</sub> or S <sub>CB</sub>	Circuit breaker switch.
4.007	\$ <sub>DT</sub> or S <sub>DT</sub>	Single pole/double throw switch.
4.008	\$ <sub>G</sub> or S <sub>G</sub>	Glow switch toggle, glows in off position.
4.009	\$ <sub>H</sub> or S <sub>H</sub>	Horizontally mounted—with on position to the left.
4.010	\$ <sub>K</sub> or S <sub>K</sub>	Key operated switch.
4.011	\$ <sub>KP</sub> or S <sub>KP</sub>	Key operated switch with pilot light on when switch is on.
4.012	\$ <sub>LV</sub> or S <sub>LV</sub>	Low voltage switch.
4.013	\$ <sub>LM</sub> or S <sub>LM</sub>	Low voltage master switch.














**4.0 SWITCHES AND SENSORS**

<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
4.014	$\$_{MC}$ or $S_{MC}$	Momentary contact switch.
4.015	$\$_{P}$ or $S_{P}$	Switch with pilot light on when switch is on.
4.016	$\$_{T}$ or $S_{T}$	Timer switch.
4.017	$\$_{WP}$ or $S_{WP}$	Weatherproof single pole switch.
4.018		Dimmer switch. Rated 1000W, unless otherwise indicated. "LV" = low voltage "FL" = fluorescent.
4.019		Occupancy sensor, wall mounted with off—auto override switch.
4.020		Occupancy sensor—ceiling mounted, "P"—indicates multiple switches wired in parallel.














## NECA 100 SYMBOLS FOR ELECTRICAL CONSTRUCTION DRAWINGS

## 5.0 MOTORIZED AND HVAC EQUIPMENT—CONROLS









Number	Preferred Symbol	Description
5.001	xxA 	Disconnect switch, unfused type, size as indicated on drawings. "xxA" indicates amperage.
5.002	$\frac{xxAF}{yyAT}$ 	Disconnect switch, fused type, size as indicated on drawings. "xxAF" indicates frame size. "xxAT" indicates trip size.
5.003	$\frac{xxAF}{yyAT}$ 	Enclosed circuit breaker, size as indicated. "xxAF" indicates frame size. "xxAT" indicates trip size.
5.004		Magnetic contactor, size as indicated on drawings.
5.005		Adjustable speed drive.
5.006	$\$M$	Motor starter switch.
5.007	RV  NEMA x	Magnetic motor starter. "RV" indicates reduced voltage. Starter size as indicated.
5.008	F  $\frac{NEMA\ x}{xxA-xP}$	Combination magnetic starter and disconnect switch. Starter size and fuse rating as indicated.
5.009		Automatic temperature control panel.
5.010		Equipment control panel.
5.011		Relay.
5.012		Toggle disconnect switch.
5.013	$\mathcal{T}_P$	Thermal motor switch with handle guard and padlock capability. "P"—indicates pilot light.

## NECA 100 SYMBOLS FOR ELECTRICAL CONSTRUCTION DRAWINGS

**5.0 MOTORIZED AND HVAC EQUIPMENT—CONROLS**












<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
5.014		Emergency power shunt trip.
5.015		Pushbutton.
5.016		On/off pushbutton station.
5.017		Three function pushbutton switch (up/down/stop).
5.018		Aquastat.
5.019		Firestat.
5.020		Humidistat.
5.021		Line voltage thermostat.
5.022		Low voltage thermostat.
5.023		Thermostat.
5.024		Solenoid valve.
5.025		Time switch.
5.026		Air flow switch.

**5.0 MOTORIZED AND HVAC EQUIPMENT—CONROLS**














<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
5.027		Electric/pneumatic switch.
5.028		Hand/off/automatic selector switch.
5.029		Flow switch.
5.030		Irrigation control.
5.031		Limit switch.
5.032		Pneumatic/electric switch.
5.033		Photo cell or photo control.
5.034		Pressure switch.







**5.1 MOTORIZED AND HVAC EQUIPMENT**

<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
5.101		Water heater.
5.102		Motor "3"—indicates horsepower.
5.103		Motorized damper.
5.104		Baseboard heater.
5.105		Baseboard heater with box.
5.106		Pipe trace heater.
5.107		Resistance heater.
5.108		Unit type heater.
5.109		Ceiling fan.
5.110		Paddle fan.
5.111		Wall fan.














**6.0 SECURITY**

<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
6.001		CCVT camera. "WP" indicates weather-proof exterior camera.
6.002		CCTV Coaxial cable outlet and power outlet.
6.003		CCTV monitor outlet.
6.004		Doorbell.
6.005		Door buzzer.
6.006		Door chime.
6.007		Electric door opener.
6.008		Electric door strike.
6.009		Intercom unit—flush MTD.
6.010		Master intercom and directory unit.
6.011		Motion detector.
6.012		Security door alarm magnetic lock.
6.013		Security card reader. "WP" indicates weather-proof.

**6.0 SECURITY**

<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
6.014		Security control panel.
6.015		Security door contacts.
6.016		Security exit push button.
6.017		Security keypad.

**7.0 FIRE ALARM COMMUNICATIONS AND PANELS**













Number	Preferred Symbol	Description
7.001		Fire alarm master box.
7.002		Fire fighter's phone.
7.003		Coded transmitter.
7.004		Drill key switch.
7.005		Key repository (knox box).
7.006		Annunciator panel.
7.007		Fire alarm control panel.
7.008		Voice evacuation panel.
7.009		Fire alarm terminal cabinet.
7.010		Battery pack and charger.
7.011		Air sampling control/detector panel with associated air sampling piping network.
7.012		Transponder.
7.013		Individual addressable module.

**7.0 FIRE ALARM COMMUNICATIONS AND PANELS**














<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
7.014	<div style="border: 1px solid black; padding: 2px; display: inline-block;">ZAM</div>	Zone adapter module.










**7.1 FIRE ALARM INDICATORS**

<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
7.101		Control relay.
7.102		Door holder.
7.103		Horn and strobe.
7.104		Mini horn and strobe.
7.105		Horn unit only.
7.106		Strobe unit only.
7.107		Bell and strobe.
7.108		Buzzer and strobe.
7.109		Chime and strobe.
7.110		Speaker and strobe.
7.111		LED pilot light.
7.112		Red indicating beacon. "WP" indicates weather-proof.

**7.2 FIRE ALARM SENSORS**





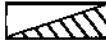

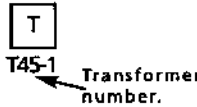






<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
7.201		Manual pull station.
7.202		Smoke detector.
7.203		Duct smoke detector with two auxilliary contacts.
7.204		Remote station for duct mounted smoke detectors.
7.205		Area type smoke detector used at duct work opening.
7.206		Elevator recall with auxilliary contacts.
7.207		Self-contained smoke detector—single station type.
7.208		Smoke detector—visual and audible signal.
7.209		Beam smoke detector "S"—indicates sending unit "R"—indicates receiver.
7.210		Carbon monoxide detector. Line voltage with battery backup.
7.211		Flame detector.
7.212		Automatic heat detector (135°F rate of rise).
7.213		Automatic heat detector. "F"—indicates fixed temperature 190°F.

**7.2 FIRE ALARM SENSORS**








<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
7.214		Hydrogen detector.
7.215		Motor operated fire/smoke duct damper.
7.216		Water flow switch.
7.217		Low pressure switch.
7.218		Tamper switch.
7.219		Post indicator valve.
7.220		End-of-line resistor.

## NECA 100 SYMBOLS FOR ELECTRICAL CONSTRUCTION DRAWINGS

## 8.0 POWER DISTRIBUTION EQUIPMENT









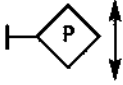




Number	Preferred Symbol	Description
8.001		Lighting or power panel, recessed.
8.002		Lighting or power panel, surface.
8.003		Distribution panel.
8.004		Lighting or power panel on normal/generator feeder.
8.005		Distribution panel on normal/generator feeder.
8.006		Motor control center.
8.007		Dry type transformer, refer to transformer schedule, "T45"—indicates transformer type. Floor mounted unless otherwise indicated. "W"—indicates wall, "S"—indicates suspended. "K"—indicates K rating.
8.008		Transformer—pad mount.
8.009		Current transformer cabinet.
8.010		Generator. Size as noted.
8.011		Meter—single.
8.012		Meter and socket.
8.013		Transfer switch. "TS"—manual transfer switch. "ATS"—automatic transfer switch.

**9.0 COMMUNICATIONS—TELEDATA**






<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
9.001		Data outlet.
9.002		Data outlet floor type. "F" indicates flush mounted. "S" indicates surface mounted.
9.003		Telephone/data outlet.
9.004		Telephone/data outlet floor type. "F" indicates flush mounted. "S" indicates surface mounted.
9.005		Telephone outlet.
9.006		Telephone outlet—wall mounted.
9.007		Telephone outlet floor type. "F" indicates flush mounted. "S" indicates surface mounted.



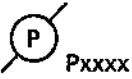
## 9.1 COMMUNICATIONS—AUDIO/VISUAL

Number	Preferred Symbol	Description
9.101		Call in switch.
9.102		Cable antenna system outlet. (CATV)
9.103		Master antenna system outlet. (MATV)
9.104		Microphone outlet—floor mounted.
9.105		Microphone outlet—wall mounted.
9.106		Speaker—ceiling mounted.
9.107		Speaker—wall mounted.
9.108		Speaker horn.
9.109		Speaker bi-directional paging—wall mounted.
9.110		Speaker bi-directional paging—ceiling mounted.
9.111		Intercom unit—flush mounted.
9.112		Master intercom and directory unit.
9.113		Volume control.



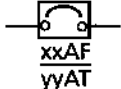
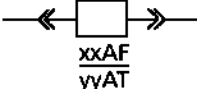
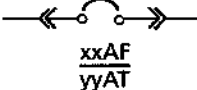
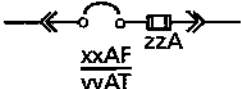



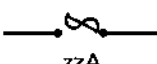

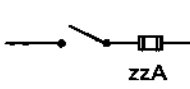
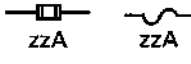
**9.2 COMMUNICATIONS—EQUIPMENT**

<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
9.201		Equipment cabinet.
9.202		Equipment rack—wall mounted.
9.203		Equipment rack—free standing.
9.204		Terminal cabinet with 3/4" plywood backing.
9.205		Plywood backboard.


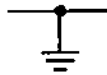

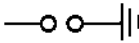





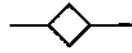


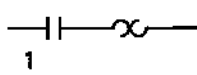
**10.0 SITE WORK**

<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
10.001	-----UF-----	Underground feeder.
10.002	-----UT-----	Underground telephone.
10.003	-----UFA-----	Underground fire alarm.
10.004	-----UTV-----	Underground television (CATV).
10.005	——— E ———	Above ground pole mounted electrical.
10.006	——— T ———	Above ground pole mounted telephone.
10.007	——— F ———	Above ground pole mounted fire alarm.
10.008	——— TV ———	Above ground pole mounted television (CATV).
10.009	—[MH]—	Manhole.
10.010	—[HH]—	Handhole.
10.011	 Pxxxx	Utility pole. "Pxxxx" indicates pole number.

**11.0 SCHEMATIC AND ONE-LINE DIAGRAM SYMBOLS**



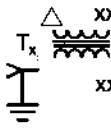
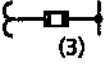
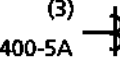




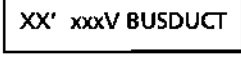
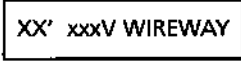
Number	Preferred Symbol	Description
11.001		Capacitor.
11.002		Circuit breaker (open). "xxAF" indicates frame size. "yyAT" indicates trip size.
11.003		Circuit breaker (enclosed). "xxAF" indicates frame size. "yyAT" indicates trip size.
11.004		Primary draw out type circuit breaker. "xxAF" indicates frame size. "yyAT" indicates trip size.
11.005		Low voltage draw out type circuit breaker. "xxAF" indicates frame size. "yyAT" indicates trip size.
11.006		Low voltage draw out type circuit breaker with current limiting fuses. "xxAF" indicates frame size. "yyAT" indicates trip size. "zzA" indicates fuse rating.
11.007		Contact, normally open (NO) ("TC"—with timed closing).
11.008		Contact, normally closed (NC). ("TO"—with timed opening).
11.009		Current transformer cabinet.
11.010		Fused cutouts. "zzA" indicates fuse rating.
11.011		Disconnect switch unfused.
11.012		Disconnect switch air break with fuse. "zzA" indicates fused rating.
11.013		Fuse. "zzA" indicates fuse rating.

**11.0 SCHEMATIC AND ONE-LINE DIAGRAM SYMBOLS**














Number	Preferred Symbol	Description
11.014		Overload relay.
11.015		Grounding connection—system and or equipment.
11.016		Kirk key interlock system. "2"—indicates related kirk keys.
11.017		Lightning arrester and grounding to protect all phases.
11.018		Motor and label. "3" denotes horsepower.
11.019		Motor operator for circuit breakers or switches.
11.020		Network protector.
11.021		Panelboard.
11.022		Pothead.
11.023		Stress cone.
11.024		Resistor.
11.025		Shunt trip.
11.026	 1	Magnetic starter with NEMA size indicated.





## 11.0 SCHEMATIC AND ONE-LINE DIAGRAM SYMBOLS

Number	Preferred Symbol	Description
11.027		Ground fault circuit interrupter, personnel protection.
11.028	 xxx KW xxxV-xØ GENERATOR	Generator.
11.029	 xxx KVA xxxV xØ xW PRI xxxY/xxxV xØ xW SEC	Transformer, dry type. Unless otherwise indicated.
11.030	 (3)	Potential transformer. "3"—indicates quantity.
11.031	 (3) 400-5A	Current transformer. "3"—indicates quantity, "400-5A" indicates ratio.
11.032		3-phase, 3-wire delta connection.
11.033		Corner grounded delta.
11.034		3-phase, 4-wire wye connection (grounded neutral).
11.035	 AFD ③ xx-x-x	Adjustable frequency drive. ③ references detail number.
11.036	 XX' xxxV BUSDUCT	Busduct or busway.
11.037	 XX' xxxV WIREWAY	Wireway.

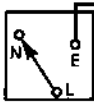


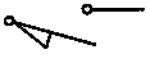
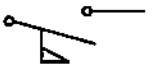

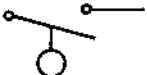


**11.1 ONE-LINE DIAGRAM SYMBOLS—SWITCHBOARD METERS**

<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
11.101		Customer meter.
11.102		Totalizing watt hour meter.
11.103		Varmeter.
11.104		Ammeter.
11.105		Ammeter phase switch.
11.106		Demand meter.
11.107		Ground detector.
11.108		Synchroscope.
11.109		Power factor meter.
11.110		Frequency meter.
11.111		Voltmeter.
11.112		Volt-ammeter.
11.113		Voltmeter phase switch.

**11.1 ONE-LINE DIAGRAM SYMBOLS—SWITCHBOARD METERS**






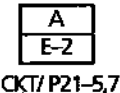

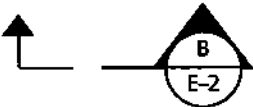


<b>Number</b>	<b>Preferred Symbol</b>	<b>Description</b>
11.114		Wattmeter.
11.115		Watt-hour meter.

**11.2 SCHEMATIC AND ONE-LINE DIAGRAM SYMBOLS—SWITCHES**

Number	Preferred Symbol	Description
11.201	 <p>AUTO/MANUAL TRANSFER SWITCH xxA-xP</p>	Transfer switch.
11.202		Push button (start).
11.203		Push button (stop).
11.204		Limit switch.
11.205		Flow switch.
11.206		Pressure switch.
11.207		Float switch.
11.208		Pilot light. Letter indicates color. Example: R=red.
11.209		Solenoid.

## NECA 100 SYMBOLS FOR ELECTRICAL CONSTRUCTION DRAWINGS

## 12.0 MISCELLANEOUS

Number	Preferred Symbol	Description
12.001	— G —	Ground bar. Length to be noted.
12.002		Mechanical equipment tag number, refer to mechanical equipment schedule.
12.003		Equipment tag number, refer to equipment schedule, "K"—indicates kitchen, "C"—indicates computer.
12.004		Note symbol, refer to note as indicated.
12.005		Feeder number, refer to "feeder schedule"
12.006		Typical/similar room or area layout symbol. "A"—indicates layout type.
12.007		Typical layout symbol—refer to layout type. "A" on drawing E-2, circuits to be used are as indicated.
12.008		Detail header, indicating detail No. 2 on drawing E-4.
12.009		Section identifier, indicating section "B" on drawing E-2. Left or right arrow.
12.010		Detail identifier, indicating detail No. 2 on drawing E-4.
12.011		Capacitor.

## 13.0 ABBREVIATIONS

Abbreviation	Description	Abbreviation	Description
1P	One pole	EOL	End of line
2P	Two pole	EWG	Electric water cooler
3P	Three pole	EXIST.	Existing
4P	Four pole	F	Flush
1P1W	One pole, one wire	FA	Fire alarm
1P2W	One pole, two wire	FBO	Furnished by others
2P2W	Two pole, two wire	FC	Fire protection contractor
2P3W	Two pole, three wire	FDN	Foundation
3P2W	Three pole, two wire	FLA	Full load amps
3P3W	Three pole, three wire	FMC	Flexible metallic conduit
3P4W	Three pole, four wire	FRE	Fiberglass reinforced epoxy conduit
4P4W	Four pole, four wire	GC	General contractor
A	Ampere	GFCI	Ground fault circuit interrupter
AC	Alternating current	GFPE	Ground fault protection equipment
AF	AMP frame	GND	Grounded
AFF	Above finished floor	GRC	Galvanized rigid conduit
AFG	Above finished grade	HP	Horsepower
AIC	Ampere interrupting capacity	HV	High voltage
AL	Aluminum	HVAC	Heating, ventilating and air conditioning
AS	AMP switch	Hz	Hertz (cycle) per second
AT	AMP trip	IAM	Individual addressable module
ARCH	Architect	IG	Isolated ground
ATS	Automatic transfer switch	IMC	Intermediate metal conduit
AUD	Audiometer box connection	JB	Junction box
A/V	Audio visual	KCMIL	Thousand circular mils
BLDG	Building	K/O	Knock-out
C	Conduit (Generic term for raceway. Provide as specified.)	KVA	Kilovolt ampere
CAM	Camera	KVAR	Kilovolt ampere reactive
CAT	Catalog	KW	Kilowatt
CATV	Cable television	LFMC	Liquidtight flexible metallic conduit
CB	Circuit breaker	LFNC	Liquidtight flexible nonmetallic conduit
CKT	Circuit	LP	Lighting panelboard
COL	Column	LS	Limit switch
C.T.	Current transformer	LTG	Lighting
CU	Copper	LV	Low voltage
CL	Centerline	MC	Metal clad cable
DC	Direct Current	MCB	Main circuit breaker
Δ	Delta	MCC	Motor control center
DISC	Disconnect	MDP	Main distribution panel
DWG	Drawing	MISC	Miscellaneous
DT	Dusttight(*)	MLO	Main lugs only
E	Wired on emergency circuit	MOD	Motor operated disconnect switch
EC	Electrical contractor	MTD	Mounted
EMT	Electric metallic tubing	MTG	Mounting



**13.0 ABBREVIATIONS CONTINUED**

<b>Abbreviation</b>	<b>Description</b>	<b>Abbreviation</b>	<b>Description</b>
MTS	Manual transfer switch	TERM	Terminal(s)
N/A	Not applicable	TYP	Typical
NC	Normally closed	UG	Underground
NEC	National Electrical Code	UTP	Unshielded twisted pair
NIC	Not in contract	V	Volt
NL	Night light	VT	Vaportight(*)
NM	Nonmetallic sheathed cable	U.O.I.	Unless otherwise indicated
NO	Normally open	Y	Wye
NRTL	Nationally recognized testing lab	W	Watt
#	Number	WH	Watthour
NTS	Not to scale	WP	Weatherproof
P	Pole	WT	Watertight(*)
PB	Pull box	XFMR	Transformer
PC	Plumbing system contractor	XP	Explosion proof(*)
PH Ø	Phase	ZAM	Zone adapter module
PNL	Panel(board)	+72	Mounting units to centerline above finished floor or grade
PIV	Post indicating valve		
PP	Power panel		
PR	Pair		
PRI	Primary		
PT	Potential transformer		
PVC	Polyvinyl chloride conduit		
PWR	Power		
REC	Recessed		
RT	Raintight(*)		
RSC	Rigid steel conduit		
S	Surface mounted		
SEC	Secondary		
SIG	Signal		
SN	Solid neutral		
SP	Spare		
SPL	Splice		
SS	Stainless steel		
STP	Shielded twisted pair		
STL	Carbon steel		
SUSP	Suspended		
SW	Switch		
SWBD	Switchboard		
TC	Telephone cabinet		
TCI	Telecommunications cabling installer		
TEL/DATA	Telephone/data		
TEL	Telephone		









(\*) It is recommended that the appropriate NEMA designation be used in place of this abbreviation.

*(This annex is not part of the American National Standard)*

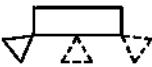



## ANNEX A: ALTERNATE FIRE SAFETY SYMBOLS

Not all of the following fire safety symbols are in common use on electrical construction drawings at this time. They are reprinted here for reference with permission from NFPA 170-1996, Fire Safety Symbols (ANSI). This excerpt does not represent the official position of the National Fire Protection Association, which is represented only by the standard in its entirety. The following symbols are copyright 1996, National Fire Protection Association, Quincy, MA.

### 5-5 Symbols for Control Panels

<b>505.1</b>	<b>Control Panel</b>		<b>Basic shape.</b>
(a)		<b>Fire Alarm Control Panel</b>	
(b)		<b>Fire System Annunciator</b>	
(c)		<b>Fire Alarm Transponder or Transmitter</b>	
(d)		<b>Elevator Status/Recall</b>	
(e)		<b>Fire Alarm Communicator</b>	
(f)		<b>Halon Control Panel</b>	
(g)		<b>Control panel for heating, ventilation, air conditioning, exhaust stairwell pressurization or similar equipment.</b>	



















### 5-6 Symbols Related to Means of Egress

<b>5-6.1</b>	Emergency Light, Battery-Powered		Number of lamps on unit to be indicated. Indicate if light head(s) [lamp(s)] is remote from battery.
<b>5-6.2</b>	Illuminated Exit Sign, Single Face		Indicate direction of flow for the face.
<b>5-6.3</b>	Illuminated Exit Sign, Double Face		Indicate direction of flow for each face.
<b>5-6.4</b>	Combined Battery-Powered Emergency Light and Illuminated Exit Sign		Number of lamps on unit to be indicated. Indicate if light head(s) [lamp(s)] is remote from battery. Indicate direction of flow for the face.

## Fire Safety Symbols

### 5-7 Symbols for Fire Alarms, Detection, and Related Equipment


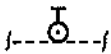
#### 5-7.1 Signal Initiating Devices and Switches.

Referent (Synonym)	Symbol	Comments
5-7.1.1 Manual Stations		Basic shape
	(a)  H	Halon
	(b)  C	Carbon Dioxide
	(c)  D	Dry Chemical
	(d)  F	Foam
	(e)  W	Wet Chemical
	(f)  P	Pull Station
5-7.1.1.1* Fire Service or Emergency Telephone Station		
	(a)  A	Accessible
	(b)  J	Jack
	(c)  H	Hand-set
5-7.1.1.2 Abort Switch		
5-7.1.2 Automatic Detection and Supervisory Devices		Basic shape
5-7.1.1.1† Heat Detector (Thermal Detector)		
	(a)  R/F	Combination—Rate of Rise and Fixed Temperature
	(b)  R/C	Rate Compensation
	(c)  F	Fixed Temperature
	(d)  R	Rate of Rise Only

† Symbol orientation not to be changed.

Referent (Synonym)	Symbol	Comments
5-7.1.2.2† Smoke Detector	②	(a) ② <sub>p</sub> Photoelectric Products of Combustion Detector (b) ② <sub>i</sub> Ionization Products of Combustion Detector (c) ② <sub>BT</sub> Beam Transmitter (d) ② <sub>BR</sub> Beam Receiver
5-7.1.2.3 Smoke Detector in Duct		
5-7.1.2.4 Gas Detector		
5-7.1.2.5† Flame Detector (Flicker Detector)		Indicate ultraviolet, infrared, or visible radiation-type detector.
5-7.1.2.6 Flow Detector/Switch		
5-7.1.2.7† Pressure Detector/Switch		Specify type—water, low air, high air, etc.
5-7.1.2.8† Level Detector/Switch		
5-7.1.2.9 Tamper Detector		Alternate term—tamper switch.
5-7.1.2.10 Valve with Tamper Detector/Switch		
5-7.2 Indicating Appliances		
5-7.2.1 Speaker/Horn (Flicker Detector)		(a)  Mini-Horn
5-7.2.2 Bell (Gong)		
5-7.2.3 Water Motor Alarm (Water Motor Gong)		Shield optional.
5-7.2.4 Horn with Light	(a) (b)	Horn with light as separate assembly. Horn with light as one assembly.

† Symbol orientation not to be changed.

	Referent (Synonym)	Symbol	Comments
5-7.2.5†	Light (Lamp, Signal Light, Indicator Lamp, Strobe)		
5-7.3	<b>Related Equipment</b>		
5-7.3.1	Door Holder		

*(This annex is not part of the American National Standard)*

## ANNEX B: TYPICAL RISERS, ONE-LINE DIAGRAMS, AND SCHEDULES

This annex provides examples of typical schedules, riser diagrams, and one-line diagrams that are included in electrical construction drawings. A given set of drawings will not necessarily include every typical example included here. This annex includes the following:

<b><u>Type</u></b>	<b><u>Page</u></b>
Panel schedule . . . . .	51
Lighting fixture schedule . . . . .	52
Transformer schedule . . . . .	53
Mechanical equipment schedule . . . . .	54
Feeder schedule . . . . .	55
Electrical one-line diagram . . . . .	56
Fire alarm riser . . . . .	57



NECA 100 SYMBOLS FOR ELECTRICAL CONSTRUCTION DRAWINGS

**Panel Schedule**

Panel: \_\_\_\_\_ Voltage: \_\_\_\_\_ Phase: \_\_\_\_\_ Wires: \_\_\_\_\_ Mains: \_\_\_\_\_

Mount: \_\_\_\_\_ Endurance: \_\_\_\_\_ Location: \_\_\_\_\_

Load Name	Load (VA)	Bkr. Frame	Trip	Ckt. No.	A	B	C	Ckt. No.	Trip	Bkr. Frame	Load (VA)	Load Name
				1				2				
				3				4				
				5				6				
				7				8				
				9				10				
				11				12				
				13				14				
				15				16				
				17				18				
				19				20				
				21				22				
				23				24				
				25				26				
				27				28				
				29				30				
				31				32				
				33				34				
				35				36				
				37				38				
				39				40				
				41				42				

Phase A: \_\_\_\_\_ Phase B: \_\_\_\_\_ Phase C: \_\_\_\_\_ Total VA: \_\_\_\_\_

Mfg./Type: \_\_\_\_\_ Modifications: \_\_\_\_\_ Amps RMS. Sym.: \_\_\_\_\_



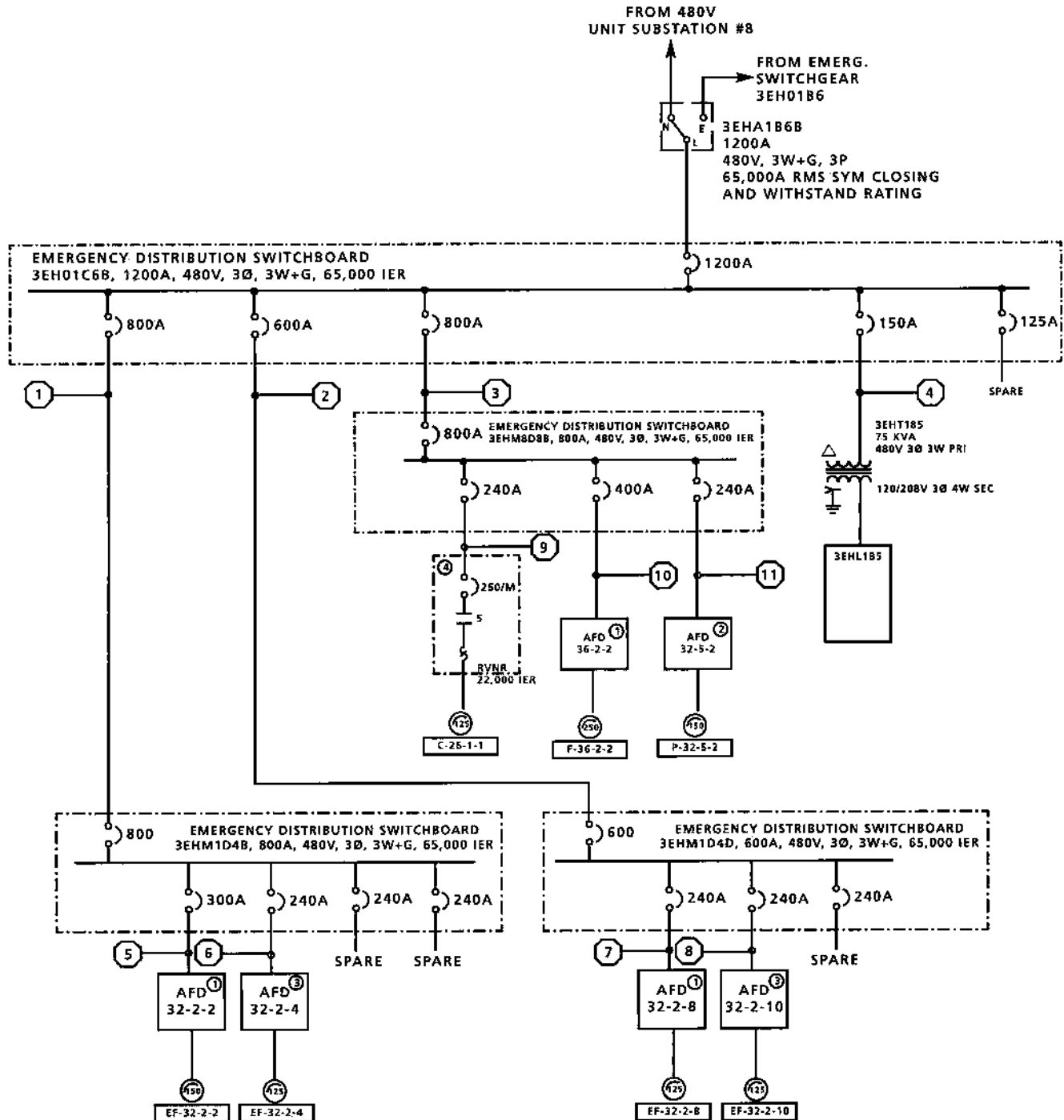




### Feeder Schedule

#

[illegible]

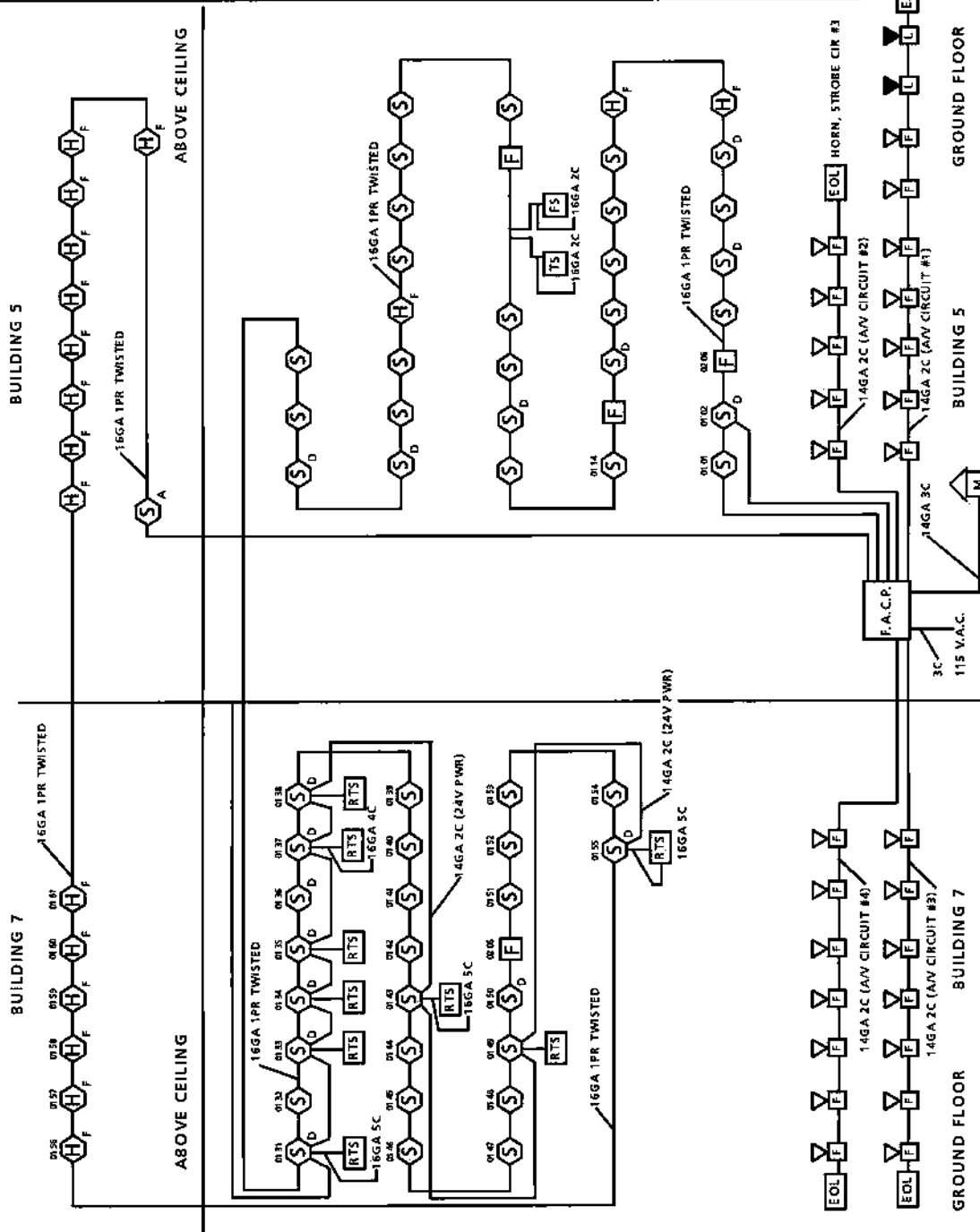
**Electrical One-Line Diagram**



## NECA 100 SYMBOLS FOR ELECTRICAL CONSTRUCTION DRAWINGS

**Fire Alarm Riser**

LEGEND	
	HEAT DET. BELOW CEILING
	SMOKE DET. ABOVE CEILING
	MANUAL FIRE ALARM STATION
	SMOKE DETECTOR, PHOTOELECTOR TYPE "E" INDICATES DEVICE PROGRAMMED FOR ELEVATOR ACTION
	ADDRESSABLE HEAT DETECTOR, RATE-OF-RISE & FIXED TEMPERATURE ABOVE CEILING
	INTERFACE ADDRESSABLE MODULE (IAM)
	CONTROL RELAY
	FLOW SWITCH
	TAMPER SWITCH
	DUCT MOUNTED SMOKE DETECTOR
	REMOTE TEST STATION
	END-OF-LINE RESISTOR
	FIRE ALARM HORN WITH LIGHT
	FIRE ALARM LIGHT ONLY
	FIRE ALARM MASTER BOX
	FIRE ALARM CONTROL PANEL
NOTES: 1. ADDRESSES LISTED ON THIS RISER ARE PRELIMINARY AND TO BE USED FOR PLANNING PURPOSES ONLY. ACTUAL ADDRESSED MUST BE OBTAINED VIA THE OPERATING FIRE ALARM CONTROL PANEL.	



*(This annex is not part of the American National Standard)*

## ANNEX C: REFERENCE PUBLICATIONS

This annex includes standards referenced this publication, as well as other electrical symbol references that are not specifically referred to in NECA 100

### **American Institute of Architects (AIA)**

1735 New York Avenue, NW  
Washington, DC 20006  
(202) 626-7300  
(202) 626-7587 fax  
www.aiaonline.com

*CAD Layer Guidelines*

### **American Society for Testing and Materials (ASTM)**

100 Barr Harbor Drive  
West Conshohocken, PA 19428-2959  
(610) 832-9500  
(610) 832-9555 fax  
www.astm.org

*ASTM F967-87 (R1995), Standard Practice  
for Security Engineer Symbols*

### **Institute of Electrical and Electronics Engineers (IEEE)**

445 Hoes Lane  
PO Box 1331  
Piscataway, NJ 08855-1331  
(800) 678-4333  
(732) 981-9667 fax  
www.ieee.org

*ANSI/IEEE 91-1991, Standard Graphic  
Symbols for Logic Functions*

*ANSI/IEEE 280-1997, Letter Symbols for  
Quantities Used in Electrical Science and  
Electrical Engineering*

*ANSI/IEEE 315-1975 (R1994), Standard  
Graphic Symbols for Electrical and  
Electronics Diagrams*

*ANSI/IEEE 991-1986 (R1994), Standard for  
Logic Circuit Diagrams*

### **Illuminating Engineering Society of North America (IESNA)**

120 Wall Street, Floor 17  
New York, NY 10005-4001  
(212) 248-5000  
(212) 248-5017 fax  
www.iesna.org

*ANSI/IESNA DG-3-1994 (R2000),  
Application of Luminaire Symbols on Lighting  
Design Drawings*

### **National Fire Protection Association (NFPA)**

P.O. Box 9101  
One Batterymarch Park  
Quincy, MA 02269-9101  
(617) 770-3000  
(617) 770-3500 fax  
www.nfpa.org

*NFPA 70-1999, National Electrical Code  
(ANSI)*

*NFPA 170-1999, Fire Safety Symbols (ANSI)*

### **Security Industry Association (SIA)**

635 Slaters Lane, Suite 110  
Alexandria, VA 22314  
(703) 683-2075  
(703) 683-2469 fax  
www.siaonline.org

*SIA Architectural Graphics - CAD Symbols for  
Security System Layout Release 2.0*

**Other National Electrical Installation Standards  
Published by NECA**

**National Electrical Contractors Association**

3 Bethesda Metro Center, Suite 1100

Bethesda, MD 20814

(301) 215-4504

(301) 215-4500 fax

[www.neca-neis.org](http://www.neca-neis.org)

NECA/FOA 301-1997, *Standard for Installing  
and Testing Fiber Optic Cables*

NECA 400-1998, *Recommended Practice for  
Installing and Maintaining Switchboards  
(ANSI)*

NECA 402-2000, *Recommended Practice for  
Installing and Maintaining Motor Control  
Centers*

NECA/EGSA 404-2000, *Recommended  
Practice for Installing Generator Sets (ANSI)*

NECA/IESNA 500-1998, *Recommended  
Practice for Installing Indoor Commercial  
Lighting Systems (ANSI)*

NECA/IESNA 502-1999, *Recommended  
Practice for Installing Industrial Lighting  
Systems (ANSI)*

**NATIONAL ELECTRICAL INSTALLATION STANDARDS®**



National Electrical  
Contractors Association  
3 Bethesda Metro Center  
Suite 1100  
Bethesda, MD 20814  
301-657-3110  
fax: 301-215-4500  
[www.neca-neis.org](http://www.neca-neis.org)

**Standards & Safety**  
**Index: NECA 100**  
**5K/6-00R**

**EXHIBIT 2 TO EXHIBIT A TO MOTION FOR LEAVE  
TO FILE BRIEF IN EXCESS OF 15 PAGES IN SUPPORT OF  
DEFENDANTS' MOTION TO DISMISS COMPLAINT**



## Copyright Claims in Architectural Works

Application Form VA may be used to file a claim in any architectural work that meets the conditions described below.

### Scope of Protection

An original design of a building embodied in any tangible medium of expression, including a building, architectural plans, or drawings, is subject to copyright protection as an "architectural work" under Section 102 of the Copyright Act, 17 USC, as amended on December 1, 1990. The work includes the overall form as well as the arrangement and composition of spaces and elements in the design but does not include individual standard features or design elements that are functionally required.

The term *building* means structures that are habitable by humans and intended to be both permanent and stationary, such as houses and office buildings, and other permanent and stationary structures designed for human occupancy, including but not limited to churches, museums, gazebos, and garden pavilions.

**NOTE:** A work is considered published when underlying plans, drawings, or other copies of the building design are distributed or made available to the general public by sale or other transfer of ownership, or by rental, lease, or lending. Construction of a building does not itself constitute publication for purposes of registration, unless multiple copies are constructed.

### Eligible Works

Architectural works created on or after December 1, 1990, and any architectural works that were unconstructed and embodied in unpublished plans or drawings on that date are eligible for protection.

### Works Excluded

The following works cannot be registered:

- Structures other than buildings, such as bridges, cloverleaves, dams, walkways, tents, recreational vehicles, mobile homes, and boats.
- Standard configurations of spaces, and individual standard features, such as windows, doors, and other staple building components, as well as functional elements whose design or placement is dictated by utilitarian concerns.
- The designs of buildings where the plans or drawings of the building were published before December 1, 1990, or the buildings were constructed or otherwise published before December 1, 1990.



## Term of Protection

Protection for an architectural work created as a work made for hire (see “Name of Author” on page 3) on or after December 1, 1990, lasts for 95 years from the date of publication of the work or for 120 years from the date of creation of the unpublished plans, whichever term is less.

Protection for an architectural work created on or after December 1, 1990, by an individual in his or her personal capacity (not as a work made for hire) lasts for the life of the author plus 70 years.

Protection for an architectural work that is unconstructed and embodied in unpublished plans on December 1, 1990, terminates on December 31, 2002, unless the work is constructed by that date.

## Registration Requirements

To register a claim to copyright in an architectural work, send the following material *in the same envelope or package* to *Library of Congress, Copyright Office, 101 Independence Avenue SE, Washington, DC 20559-6000*:

- 1 A properly completed application Form VA
- 2 A nonreturnable copy of the work (see “Deposit Requirement” below)
- 3 A nonrefundable filing fee\* in the form of a check, money order, or bank draft payable to *Register of Copyrights*

\*NOTE: Copyright Office fees are subject to change.

For current fees, please check the Copyright Office website at [www.copyright.gov](http://www.copyright.gov), write the Copyright Office, or call (202) 707 3000.

### Separate Registration for Plans

A claim to copyright in an architectural work is distinct from a claim in technical drawings of the work. If registration is sought for both an architectural work and technical drawings of the work, separate applications must be submitted.

### Registration Limited to Single Architectural Work

A single application may cover only a single architectural work whether published or unpublished. A group of architectural works may not be registered on a single application form. For works such as tract housing, a single work is one house model with all accompanying floor plan options, elevations, and styles that are applicable to that particular model.

## How to Complete Form VA

### Title

At space 1, indicate the title of the building *as well as the month and year when construction was completed*. If the building has not yet been constructed, *follow the title with the notation “not yet constructed.”* The “nature of this work” space should state “architectural work.”

### Name of Author

At space 2, give the full name of the author who created the design of the architectural work. If the work was made for hire, name the employer as the author, and check “yes” to show that the work was made for hire. A work “made for hire” is one prepared by an employee within the scope of his or her employment, such as an architect employed by a firm. If the work was not “made for hire,” name the individual who actually created the design as the author, and check “no” to show that the work was not made for hire. For more information on work for hire, request Circular 9, *Works Made for Hire*.

At this space, also list the country of which the author is a citizen or the country in which the author is domiciled.

### Nature of Authorship

“Architectural work” is the acceptable authorship description. Do not refer to authorship of the drawings on an application for an architectural work (see “Separate Registration For Plans” above).

### Creation and Publication

At space 3, give the year of creation and, if applicable, the date of first publication (month, day, year) of the architectural work. The creation date is the year in which the architectural work is embodied in plans, drawings, or models. Publication is defined in the boxed note on page 1.

### Claimant

At space 4, give the name(s) and address(es) of the copyright claimant(s) in this work, even if the claimant is the same as the author. Copyright in a work belongs initially to the author of the work. The copyright claimant is either the author or a person or organization to whom the author has transferred all of the rights in the United States copyright.

### Transfer

Ownership or partial ownership of the rights in a work must generally be transferred by a written instrument or by operation of law. If the copyright claimant is other than the author, give a brief statement in space 4 of how the claimant obtained ownership of the copyright, for example, “by writ-



ten contract," "transfer of all rights by author," or "by assignment." Do not attach transfer documents.

### **Previous Registration**

The questions in space 5 are intended to find out whether an earlier registration has been made for this work and, if so, whether there is any basis for a new registration. As a rule, only one basic copyright registration can be made for the same version of a particular work.

If this version is substantially the same as a work covered by a previous registration, a second registration is not generally possible unless: (1) the work has been registered in unpublished form and a second registration is now sought to cover the first published edition; (2) someone other than the author is identified as copyright claimant in the earlier registration, and the author is now seeking registration in his or her own name; or (3) the work has been changed, and registration is now sought to cover the additions or revisions; and (4) the previous registration was for a technical drawing, and registration is now sought for the architectural work. If any of these exceptions applies, check the appropriate box and give the previous registration number and year. If more than one previous registration has been made for the work, give the most recent registration number and year. If the previously registered work has been changed, complete both parts of space 6 in accordance with the instructions below for "Derivative Work."

**NOTE:** If a drawing representing this architectural work has been previously registered, *indicate on the last line of space 5 that the previous registration was for a drawing.*

### **Derivative Work**

Complete space 6 if this work is a "changed version" or "derivative work" and if it incorporates one or more earlier works that have already been published or registered for copyright or that are in the public domain. A derivative work may be registered if it contains substantial additions or modifications to an earlier work and if these modifications, as a whole, represent an original work of authorship.

In space 6a describe the preexisting work. In space 6b describe the substantial additions or modifications for which registration is sought.

### **Deposit Requirement**

The required nonreturnable deposit for an architectural work, whether or not the building has been constructed, is one complete copy of an architectural drawing or blueprint in visually perceptible form showing the overall form of the building and any interior arrangement of spaces and/or design elements in which copyright is claimed.

In cases where the claimant is seeking registration for both an architectural work and for the same work's technical drawings, the deposit of a single technical drawing will suffice for both claims if the applications are submitted together.

For archival purposes, the Copyright Office prefers that the drawings constitute the most finished form of presentation drawings and consist of the following in descending order of preference:

- 1 Original format, or best quality form of reproduction, including offset or silk screen printing
- 2 Xerographic or photographic copies on good quality paper
- 3 Positive photostat or photodirect positive
- 4 Blue line copies (diaz or ozalid process)

*The deposit for a building that has been constructed must also include identifying material in the form of photographs that clearly disclose the architectural work being registered. The Copyright Office prefers 8 × 10", good quality photographs that clearly show several exterior and interior views. The Copyright Office prefers that the deposit disclose the name(s) of the architect(s) and draftsman(s) and the building site.*

### **For Further Information**

#### **Information via the Internet**

Circulars, announcements, regulations, other related materials, and all copyright application forms are available from the Copyright Office website at [www.copyright.gov](http://www.copyright.gov).

#### **Information by telephone**

For general information about copyright, call the Copyright Public Information Office at (202) 707-3000. The TTY number is (202) 707-6737. Staff members are on duty from 8:30 AM to 5:00 PM, eastern time, Monday through Friday, except federal holidays. Recorded information is available 24 hours a day. Or, if you know which application forms and circulars you want, request them 24 hours a day from the Forms and Publications Hotline at (202) 707-9100. Leave a recorded message.

#### **Information by regular mail**

Write to:

Library of Congress  
Copyright Office  
Publications Section  
101 Independence Avenue SE  
Washington, DC 20559-6000

